MODERN TEXTILES

MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

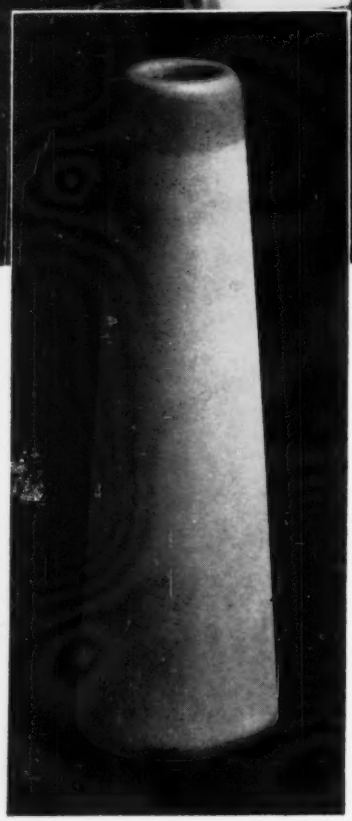
FABRICS

FINISHES

Scranton Lace's
H. J. MEGARGEL —
a millman who
loves to sell —
Story page 31

FEATURES

Decrease Downtime WITH SONOCO-RESEARCHED PRODUCTS



There is nothing that cuts deeper into profits than downtime . . . and here's how SONOCO-researched carriers keep downtime to a minimum.

All SONOCO cones represent exhaustive research and development. They are made to accept and deliver yarn smoothly. Downtime, resulting from the carrier, is practically eliminated.

The SONOCO 3°30′ cone, as shown, is a typical example. It is job-engineered especially for winding rayon, nylon and other filament yarns.

SONOCO is the one company in its field that, for nearly 60 years, has supplied the industry with research-developed paper carriers. For you, SONOCO products mean better performance, greater economy and more profitable production!

SONOCO

Products for Textiles

SONOCO PRODUCTS COMPANY

Main Office—HARTSVILLE, S. C. • MYSTIC, CONN. • AKRON, IND. • LOWELL, MASS. • PHILLIPSBURG, N. J. • LONGVIEW, TEXAS • PHILADELPHIA, PA. • LA PUENTE, CAL. • ATLANTA, GA. • GRANBY, QUEBEC • BRANTFORD, ONTARIO • MEXICO, D. F.

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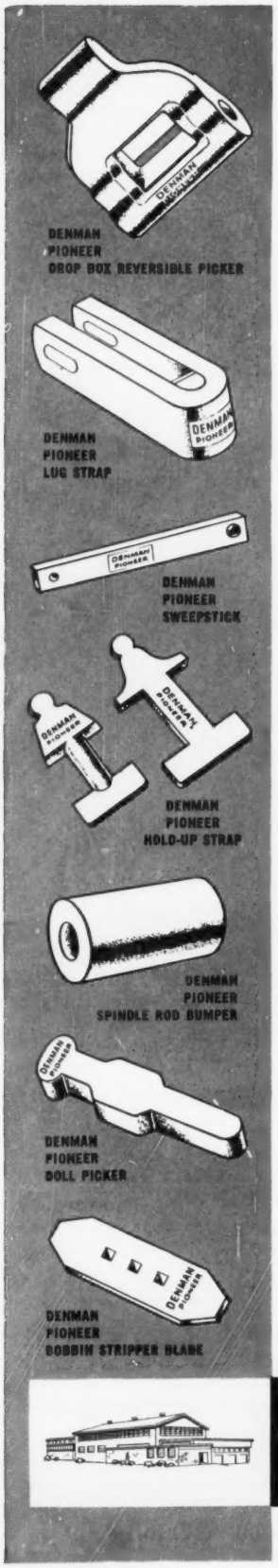

DENMAN PIONEER DROP BOX REVERSIBLE PICKER
DENMAN PIONEER LUG STRAP
DENMAN PIONEER SWEEPSTICK
DENMAN PIONEER HOLD-UP STRAP
DENMAN PIONEER SPINDLE ROD BUMPER
DENMAN PIONEER DOLL PICKER
DENMAN PIONEER BOBBIN STRIPPER BLADE

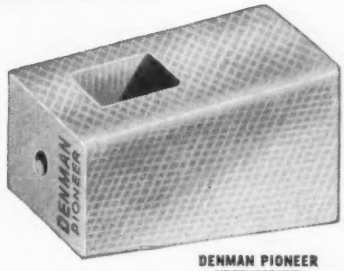
SPECIFY THE ORIGINAL

Denman

PIONEER LOOM PARTS

Compounded For Smooth, Dependable Performance . . .

Longer Life And Greater Resistance To Shock!



DENMAN PIONEER LOOP PICKER

For more than 20 years Original Denman Pioneer Loom Parts have set new standards for smooth, dependable performance. They are scientifically designed and moulded to absorb repeated loom shocks with little or no adjustment . . . need replacement only after longer-than-average service. To cut costs, step up production, specify Original Denman Pioneer Loom Parts . . . they are built for rugged use and a longer "prime of life"!

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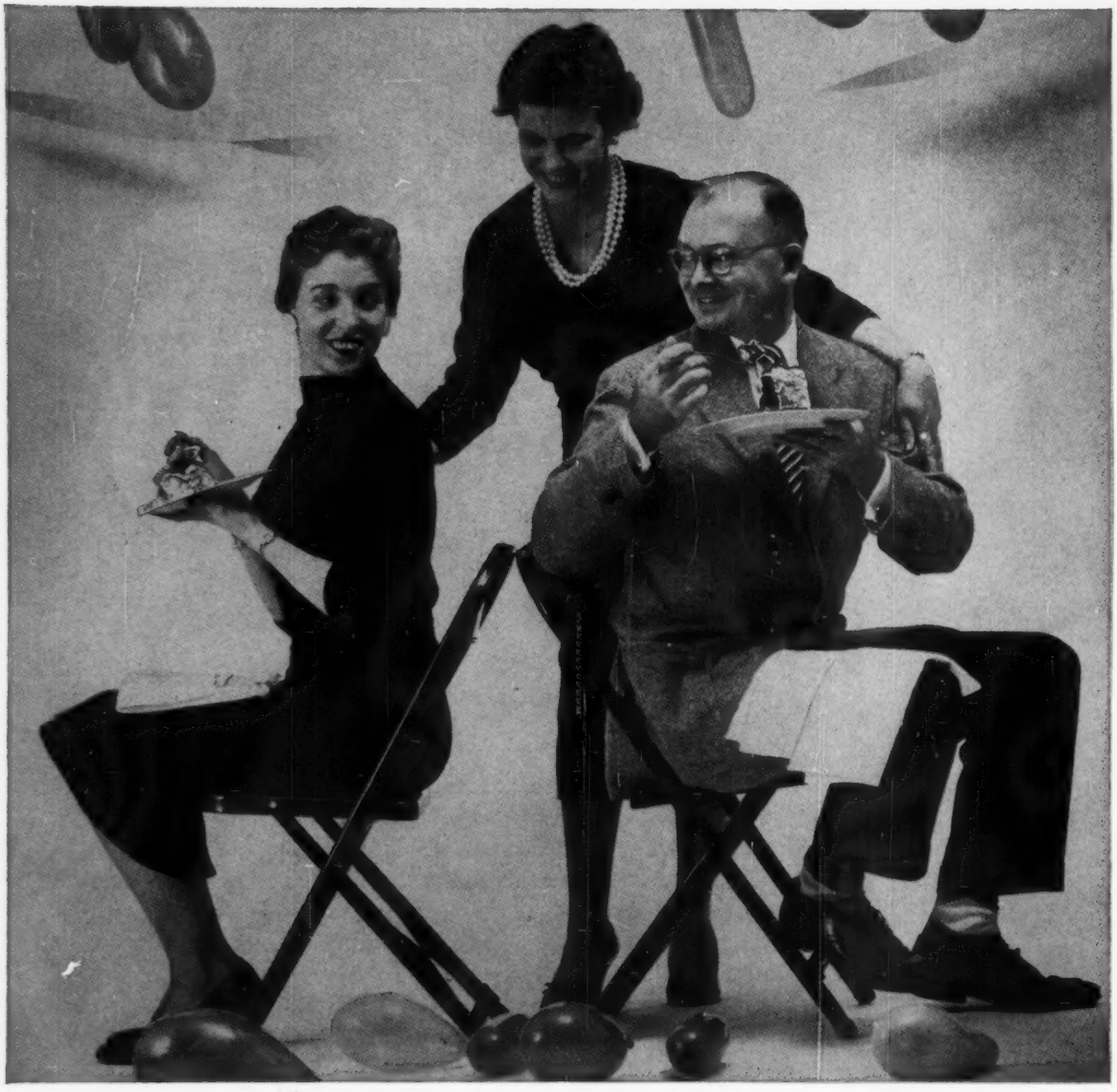

COLUMBIA-SOUTHERN CHLORINE: *matchmaker at work*

Every town, and often neighborhood, has its inveterate matchmaker. With economical precision of insight, the matchmaker pairs the young . . . and sometimes not-so-young . . . into couples. Shy youngsters are gently prodded from their corners, the too enthusiastic cunningly curbed, the "not interested" patiently taken in hand.

Day after day in plant after plant, Columbia-Southern chlorine steps in to smooth problems in processing "romance." Compound C just can't tolerate Compound F . . . Compound XY won't be nudged into a molecular change . . . Compound Z refuses to alter its awkward form! Only until the transforming touch of chlorine, working through oxidation, addition, or replacement reactions, so quickly creates the favorable conditions needed.

Columbia-Southern chlorine *is* uniquely adept at this vital matchmaking. Its history begins with our extraction of the purest brine from wells thousands of feet deep, continues through painstaking separation in the world's most modern facilities, reaches its peak in delivery to you by such Columbia-Southern pioneered improvements as fusion-welded tank cars or inland waterways barge fleets.

So as your requirements for chlorine grow, why not contract with the country's leading, most experienced merchant producer? Contact Columbia-Southern today for chlorine that matches wits with your *processing*, not with you.

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IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

MODERN
TEXTILES MAGAZINE

March, 1958 Vol. 39, No. 3

Modern Textiles Magazine
Established 1925

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Published Monthly by
Rayon Publishing Corporation
303 Fifth Ave., New York 16, N. Y.
MUrray Hill 4-0455

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Subscription Rates: North and South America and U. S. Possessions, one year $5.00; all other countries, one year, $8.00. Postage prepaid by the publisher. Single copies (current issue), 60 cents.

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Member of
Business Publications Audit of Circulation, Inc.

Entered as second-class matter at the Post Office, Manchester, N. H. Editorial and Circulation offices at 303 Fifth Avenue, New York 16, N. Y. Publication offices at 215 Canal Street, Manchester, N. H.
(Originally entered as second-class matter at the Post Office, New York, N. Y. August 20, 1925).

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The Principal Trade Groups

Man-Made Fiber Producers Association ..... Empire State Bldg., New York
National Federation of Textiles, Inc. ..... 389 Fifth Ave., New York
American Association of Textile Chemists and Colorists ..... Lowell Techn. Inst., Lowell, Mass.
American Association for Textile Technology, Inc. ..... 100 W. 55th St., New York
Silk and Rayon Printers and Dyers Ass'n of America, Inc. ..... 1450 Broadway, New York
Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York
American Rayon Institute ..... 350 Fifth Avenue, New York

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Urges United Industry Sales Effort

A strong plea for all segments of the textile industry to join forces in a common effort to increase total consumption of all textiles was made at the annual convention of the National Cotton Council in Phoenix, Ariz., by Jackson E. Spears, a vice president of Burlington Industries. Speaking as a representative of his company and as a delegate to the convention representing the cotton spinners, Spears pointed out that the well-being of each segment of the industry is dependent, in the final analysis, on the strength and prosperity of the entire industry. He told members that although cotton is your primary interest, "you cannot live alone without the other fibers anymore."

Goodrich's Fiber Is Renamed "Darvan"

"Darvan" is the new name for the B. F. Goodrich Chemical Co. fiber formerly called Darlan. The dinitrile fiber was introduced two years ago and is now in the early stages of commercial development. So far it has appeared in women's sweaters and deep pile coats, in tropical suits for men and hand knitting yarns. Goodrich president John R. Hoover said that the new name was chosen because it was more distinctive and would eliminate possible confusion with existing trade names in the textile industry. It was reported in the trade that Goodrich was chiefly concerned over the similarity between the name "Darlan," and the nationally advertised Darlene brand of sweaters manufactured by M. K. M. Knitting Mills.

Reynolds Yarn Tradename

Metallic yarns produced by Reynolds Metals Co. hereafter will be identified primarily by the registered trademark "Reymet," according to Robert F. Lewis, manager, Reynolds textile market sales. The trademark, Reynolds Aluminum Yarns, will be used less extensively for these products. The company produces aluminum yarns in both filament and staple forms for use by weaving firms and knitters in making upholstery, drapes, sweaters, gowns and other products.

New Du Pont Nylon Plant

Du Pont's fourth nylon plant at Richmond, Va., for producing heavy denier nylon for tire cord and industrial products, is now in operation. The new facility will produce 40,000,000 pounds annually. The plant was erected on the same site as the company's rayon plant in an effort to help stabilize employment in the face of a lessened demand for rayon, Du Pont reported.

Textile Mill Failures

Failures among manufacturers of textile mill products in 1957 increased by 7% (93 last year as against 87 in 1956) but a decrease of 16% in liabilities ($8,810,000 vs. $10,432,000), according to Credit Clearing House, a division of Dun & Bradstreet, Inc. Manufacturers of apparel and other finished products, however, showed a 9% decerase in number of failures (408 vs. 450) and a 10% decrease in liabilities ($21,636,000 vs. $24,104,000). This downward trend, CCH said, was also generally noted in the failure statistics for wholesalers of dry goods and of apparel (77 vs. 96), although liabilities were up 13% among apparel wholesalers ($2,531,000 vs. $2,241,000).

Failures among retailers of apparel and accessories, dry goods and general merchandise increased 1% in numbers (1,293 vs. 1,277) but decreased 4% in liabilities ($33,714,000 vs. $35,294,000). Last year 2,680 new retail apparel businesses became active with a total starting capital in excess of $28,897,000.

The word for rayon

HARTFORD

the symbol of dependability

Count on Hartford for a wide range of the finest rayon fiber staple. Count on Hartford for on-time service . . . a thoroughly dependable source of supply.

- Solution-dyed heavy denier crimped rayon staple KOLORBON†
- White heavy denier crimped rayon staple . . . . VISCALON 66†
- White heavy denier "smooth" rayon staple . . . VISCALON 44
- White fine denier regular rayon staple . . . . . VISCALON 22

†Available in both 3" and 6" lengths

HARTFORD RAYON COMPANY

136 Madison Avenue, New York City

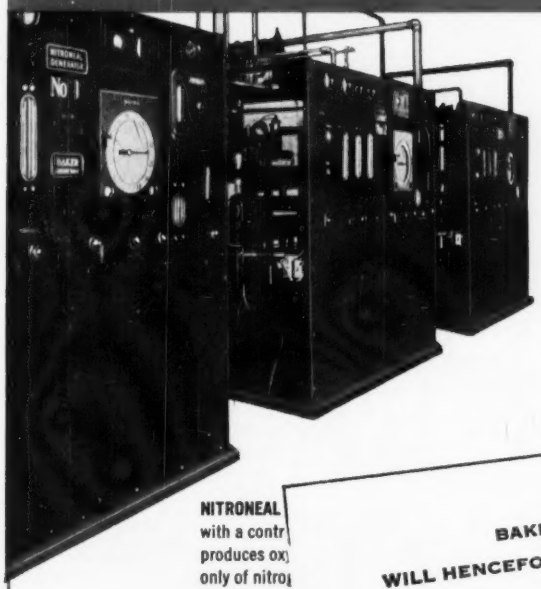
Southern Sales Office: Atlanta, Georgia

The country's leading producer of solution-dyed rayon staple

SPINNERETTES . . .
for synthetic fibers . . . unique in industrial production. Delicate, precision units that are the foundation of an entire manufacturing process. Made of purest metals, under strictest scientific control.

SUPER-SENSITIVE DEOXO® INDICATOR . . . for measuring oxygen or hydrogen present as impurities in other gases. Accurately indicates from 0.0002% to 0.0200% (2 to 200 parts per million) oxygen, and from 0.0004% to 0.0400% hydrogen. A dual range permits measurement of up to 0.25% oxygen or 0.5% hydrogen.

for synthetic fibers ... for indication of O_2 or H_2 ... for producing nitrogen ... for laboratories ...



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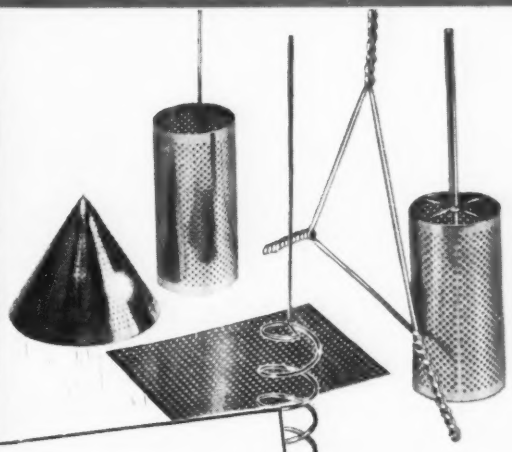

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RESEARCH MAINTA · BAKER'S LEADERSHIP IN PRECIOUS METALS

Vicara Output Halted?

Output of Vicara, the wool-like fiber manufactured by Virginia-Carolina Chemical Co. has been stopped, according to reports in the trade. There is some discussion in trade circles that Virginia-Carolina is negotiating with Charles Pfizer & Co., Inc., for possible sale of its Vicara Division to Pfizer or for an arrangement whereby Pfizer would acquire some of the processes or equipment used in producing Vicara. Officials of both companies refused comment on these reports.

Vicara, a protein fiber made from zein, a derivative of corn, was introduced in 1951. The fiber was produced at a plant in Taftville, Conn., formerly used for the manufacture of Aralac, a casein fiber which disappeared from the textile scene prior to the introduction of Vicara. Vicara was the only protein fiber produced in the United States. Numerous fibers with a protein base are made in Europe.

Appalachian Group Meets April 10

The subject of metallic yarns will be discussed by a series of authoritative speakers at the next meeting of the Appalachian Group of the American Association for Textile Technology on Thursday, April 10. Speakers will be H. E. Allen, A. S. Gould and L. E. Seidel of the Dobeckmun Co. The meeting will be held at the Franklin Club in Elizabethton, Tenn., beginning with dinner at 6:45 P.M. Reservations are $2.50 for members and $3 for non-members. All interested persons are cordially urged to attend regardless of membership in AATT. Reservations may be made by contacting H. A. Thompson, P. O. Box 511, Building 112, Tennessee Eastman Co., Kingsport, Tenn. Monday, April 7 is the last day for receipt of reservations.

Allied Producing Nylon Staple

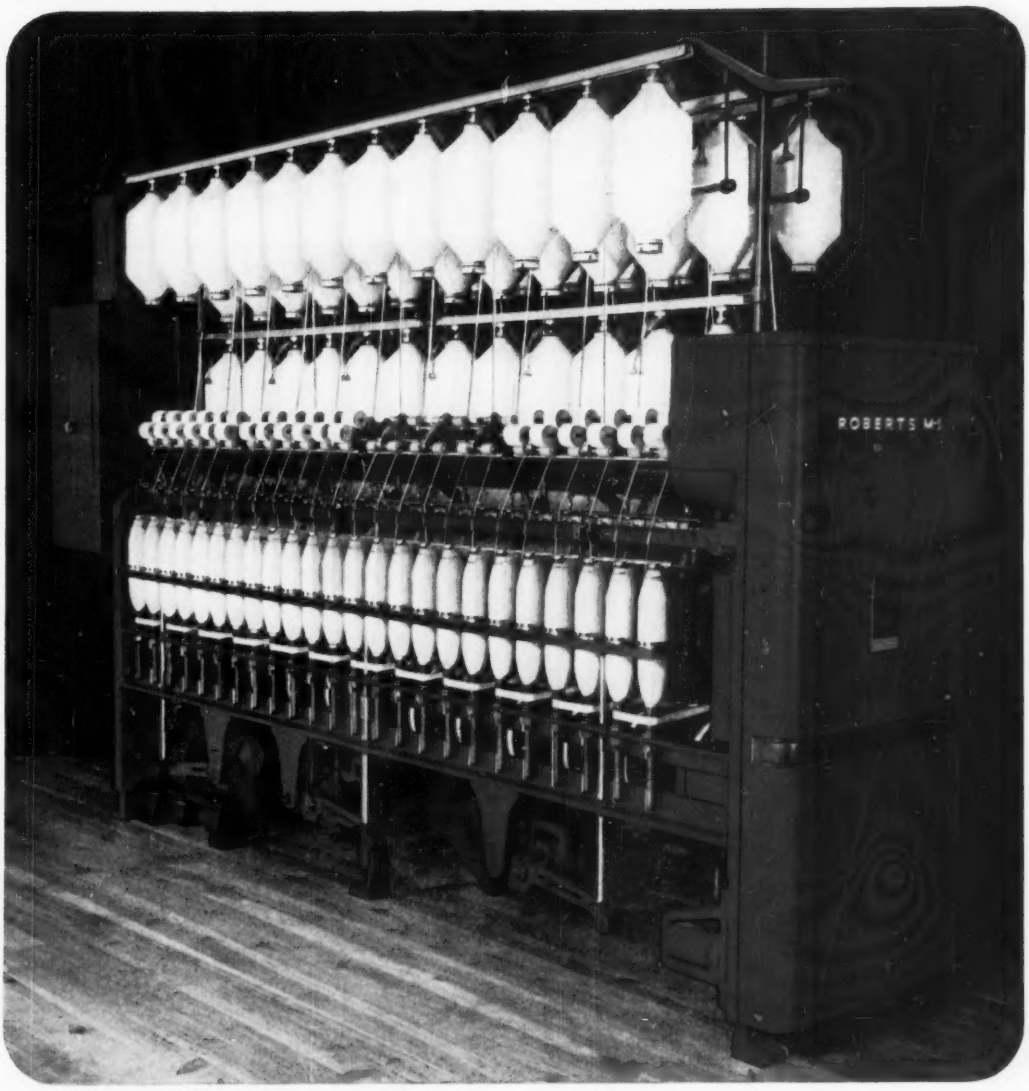
Commercial production of 15 denier Caprolan nylon staple fiber was recently started by Allied Chemical & Dye Corp. at its fiber plant at Chesterfield, Va. The plant is operated by Allied's National Aniline Division. The staple is intended primarily for carpet uses.

George H. Hotte, director of fibers sales and service, who made the announcement, said that Caprolan staple has been under development for a considerable period of time and, in recent months, has been subjected to utilization tests in the mills of yarn spinners, tufters and weavers. It was only after the completion of these tests that the decision was made to produce the new carpet fiber on a commercial basis, Hotte said.

Caprolan staple is available in lengths suitable for all spinning systems. Crimp levels, luster and heat-setting properties have been carefully engineered for carpet use. In addition to all of the performance values normally expected of nylon, Caprolan staple also offers advantages of lasting whiteness, excellent affinity for virtually every class of dyestuffs, exceptional penetration and level dyeing properties, excellent resilience and unsurpassed abrasion resistance, Hotte said.

New Machinery Plant

Proctor & Schwartz, Inc., textile machinery manufacturer, has started construction of a new plant at Waynesville, N. C. The new building, which will have 72,000 square feet of space, is situated on a 27½-acre site on the Southern Railway. The plant will be used first to make textile fiber processing machinery. Later, the company plans to add manufacturing facilities for drying equipment, and equipment for tobacco processing.



ROBERTS SPINNING

ALL NEW—ALL BALL BEARING ROBERTS M-1 SPINNING FRAME

MODERN IN DESIGN

Into the rugged simplicity of the Roberts M-1 chassis has been built all the ball bearing features needed to provide the smooth operation and productivity for today's and tomorrow's production goals. Standard features include:

- FLEXIBILITY FOR COTTON AND SYNTHETICS
- BALL BEARING TOP ROLL SUSPENSION
- BALLOON CONTROL ARRANGEMENT
- BUILT-IN UnitVac SUCTION CLEANING
- EXTRA CAPACITY SPINDLES
- FULL BALL BEARING HEAD
- 45 DEGREE ROLL STANDS
- LATCH-TYPE BOBBIN HOLDER AEROCREEL
- STEEL BASE RAILS, ROLL BEAMS, RING RAILS
- ADJUSTABLE DRAFT CONSTANT, 500 to 3000
- TURNKEY ERECTION AND STARTUP

PROVEN IN PERFORMANCE

New Roberts Spinning has been running in the mill since February 1956 and has proven itself not only most economical in initial cost but low in maintenance. One large user with more than 200 frames in continuous production reports that the new Roberts Spinning runs with higher front roll speeds, better yarn quality and substantially lower ends down than the several thousand frames of other makes in operation in their mills.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

No hands

Did you know we could lick your yarn-breaking, puff-balling, dye-streaking headaches for you with both (so to speak) hands tied behind our backs?

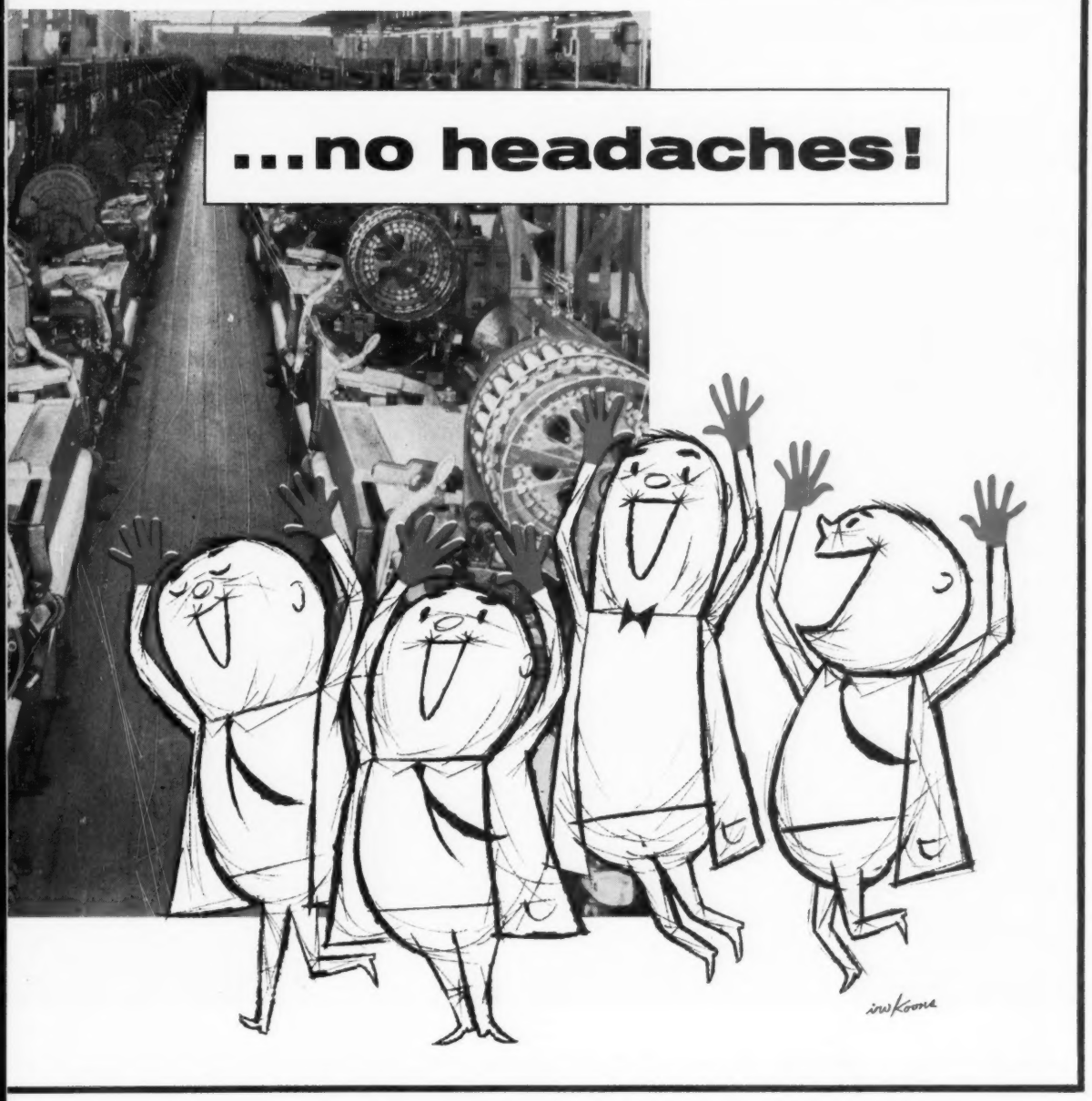
We can.

Because we process our rayon yarn with a strictly hands-off policy!

I.R.C. Continuous Process Rayon is actually processed in a continuous individual thread treatment . . . goes from spin-bath to bobbin without once being touched by anybody's hands!

That means there's no chance whatever of your getting the yarn damages caused by multiple handling, as in ordinary rayon processes. And that means we virtually eliminate the breaks, the puff-balls, the lack of uniformity that give you fabric "seconds" headaches!

We'd like you to see the process at our famous Painesville, Ohio plant. Barring that, why not have us come to see you, at yours?

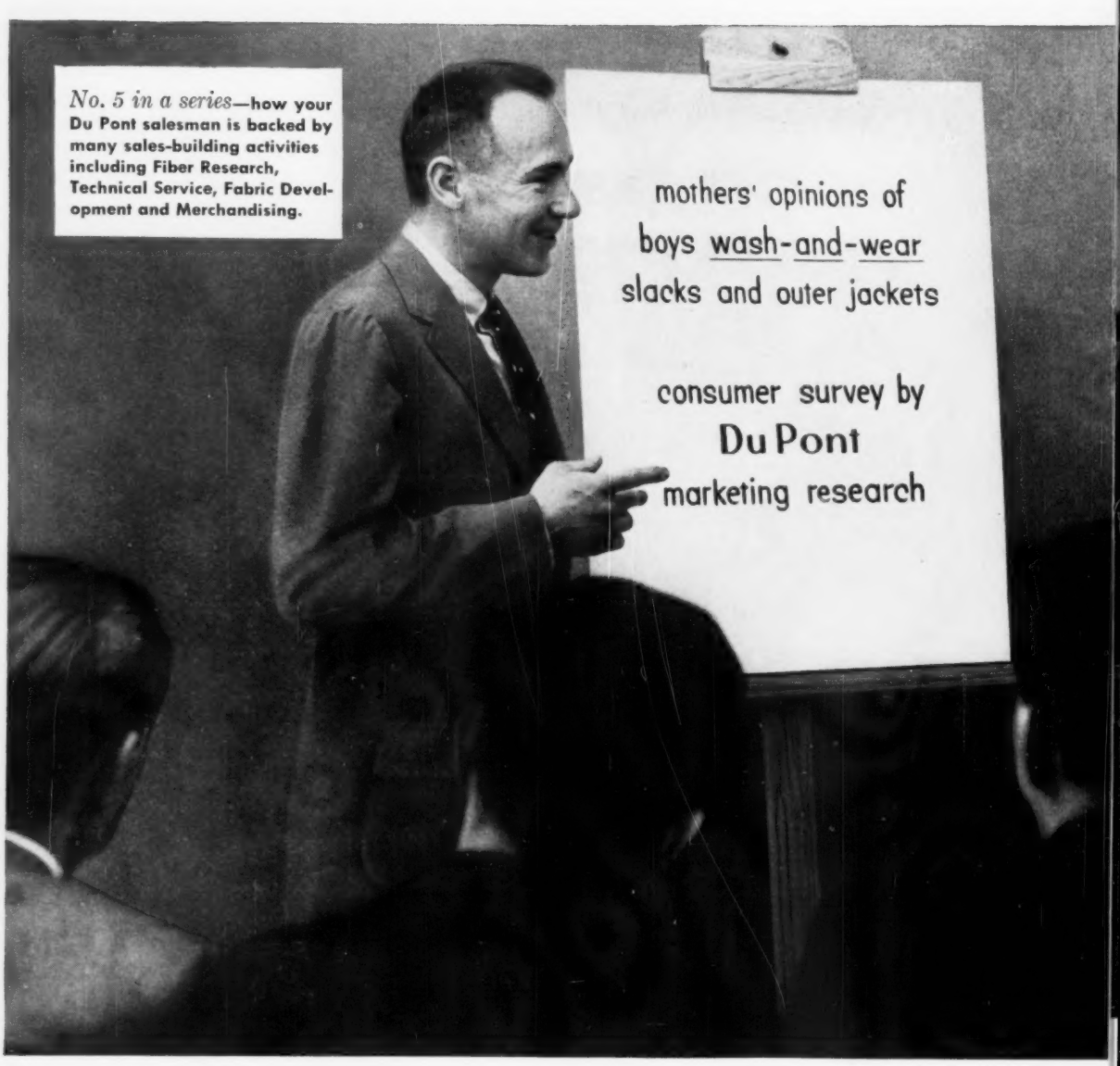


I·R·C

Industrial Rayon Corporation
Cleveland, Ohio

Producers of Continuous Process Rayon Yarns
and Tyron® Cord for Tires
Sales Office: 500 Fifth Ave., New York 36, N. Y.

IRC CONTINUOUS PROCESS RAYON COSTS NO MORE...SAVES YOU PLENTY BECAUSE IT'S PERFECT INCH BY INCH . . . UNIFORM MILE AFTER MILE!


No. 5 in a series—how your Du Pont salesman is backed by many sales-building activities including Fiber Research, Technical Service, Fabric Development and Merchandising.
mothers' opinions of
boys wash-and-wear
slacks and outer jackets
consumer survey by
Du Pont
marketing research

Marketing research stops guesswork

Here's Dan Colyer, of our Marketing Research Section, presenting the results of a national survey to Gardner Mackinnon, Merchandise Manager, and Charles Chrenko, Boys' Wear Buyer, of Frederick Atkins, Inc.

An important part of Du Pont's Market Research activity is consumer surveys. Their purpose is to (1) define the true potential for our fibers in specific markets; (2) determine effective ways of appealing to consumers. This information is then passed on to interested elements of the textile industry to help them capitalize on opportunities uncovered.

An example is the one being presented in the above photo. Its objective was to determine the consumer appeal of Du Pont fibers in boys' wash and wear slacks and outer jackets and to determine the most effective sales points to use in merchandising this apparel to mothers.

To find the answers, two 3-hour panel sessions were held with 10 mothers who had one or more boys 7-14 years old. From these sessions came a

FROM RAW FIBERS TO RETAIL SALES . . .

Product and Process Notes from Du Pont

Dyeing "Dacron"*/Cotton by Continuous Process—The thermosal process for the continuous dyeing of "Dacron" is gaining wider trade acceptance as larger volumes of blends of "Dacron"/cotton are produced. Combined with continuous vat dyeing of the cotton, dyeings of unexcelled fastness can be obtained at speeds comparable to other continuous methods.

Ondulé Rayon—Ondulé, a new continuous filament rayon yarn containing randomly spaced, entangled slubs, is now available in 250, 450 and 2200 deniers. The slubs in Ondulé impart to fabrics an unusual resemblance to certain types of silk. This new yarn is expected to become important in draperies, casements, suitings and bedspreads.

Sewing-Machine Adjustments—A machine adjustment technique has been developed to provide optimum sewability with threads of Du Pont fibers. The step-by-step, easy-to-follow procedure, which reduces thread breakage and seam puckering, has resulted in significant improvement in sewability as demonstrated on plant equipment. Threads of cotton or Du Pont fibers can be used interchangeably on machines which are so adjusted. This improvement in tailoring technique should broaden new market possibilities for fabrics containing Du Pont fibers.

Technical Information Bulletins—These bulletins contain detailed, practical information on Du Pont product and process developments. They cover fiber properties, mill processing, dyeing, finishing and fabrication. Refer to your copies frequently; they can save you time and money. To be sure you have all the bulletins you need—check with your Du Pont salesman or Technical Service representative.

*Du Pont's registered trademark for its polyester fiber.

Enjoy the "Du Pont Show of the Month"—on CBS-TV

—accentuates selling

questionnaire aimed at finding out mothers' attitudes, motives and purchasing desires in regard to their boys' clothing. This questionnaire was then sent to a national sample of mothers by the Home Testing Institute. One thousand returns were received, tabulated and interpreted.

Among the facts revealed by this survey Du Pont learned—*and is making available* to mills, manufacturers, retailers—that 71% of mothers preferred wash and wear slacks to washable or drycleanable ones. Thus market and selling potentials were defined through factual measurements—providing opportunities for more intelligent planning.

Du Pont believes it can increase the market for its fibers and thus benefit its customers by providing useful assistance to all levels of the textile industry. It's through your Du Pont sales representative that you, as a customer, have access to a range of technical and merchandising information unique in the textile industry.

DU PONT REG. U. S. PAT. OFF.

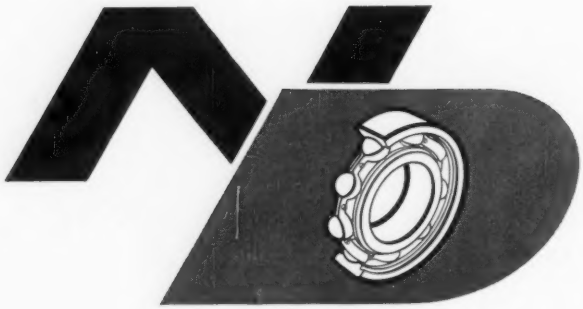
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

DU PONT BUILDS PROFITS FOR YOU

NEW DEPARTURE

NEW DEPARTURE

NEW DEPARTURE



Symbol of a Reputation

. . . a reputation for integrity, for quality and service . . . for advanced creative engineering achieved by New Departure in over half a century of precision ball bearing manufacture.

You'll find this emblem is also symbolic of our determination to continue, in the fullest measure, all those factors which have built that reputation. It is a visual pledge of this resolution to all our customers, present and future.

turning point of modern industry

1908–1958 GM FORWARD FROM FIFTY

NEW DEPARTURE

DIVISION OF GENERAL MOTORS—BRISTOL, CONN.

Geared to the needs of every textile market

ARNEL the new triacetate fiber for easy-to-care-for lingerie and apparel.

ACETATE the beauty fiber for elegant dress fabrics, sportswear, men's apparel, home furnishings, umbrellas and lampshades.

CELACLOUD the pure-white acetate staple fiber specially engineered for hygienic mattresses, mattress pads, sleeping bags, and upholstered furniture. Ideal outerwear batting too.

CELAFIL the white, light and resilient acetate staple fiber exclusively designed for sleeping pillows and comforters.

TYPE HC ACETATE the new high crimp carpet acetate staple fiber is tops in tufts; can be permanently heat set, cross-dyed beautifully, processed on cotton systems.

CELAPERM the filament acetate yarn with "sealed-in" color for bathing suits, shirtings, sportswear, children's clothes, other apparel and home furnishings.

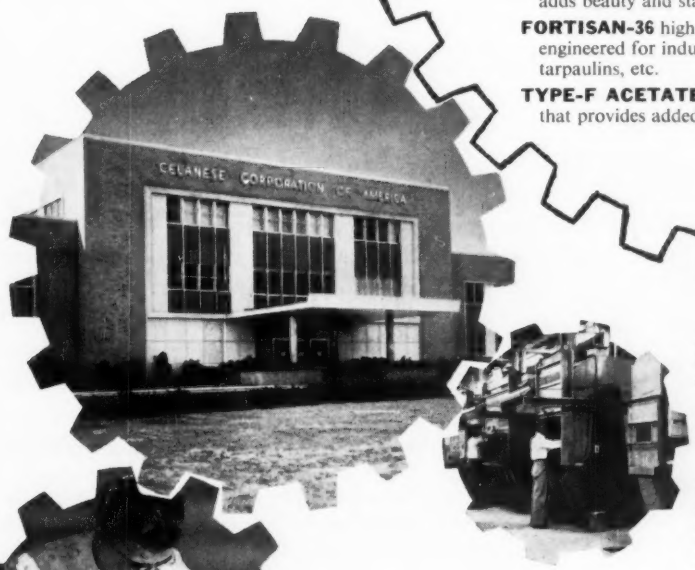
BULKED CELAPERM the new bulked filament acetate yarn brings a lofted look to home furnishings, upholstery and floor covering fabrics, plus apparel for all.

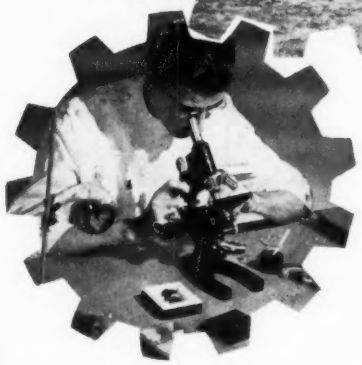
QUILTICEL the permanently bonded acetate batting for interlining holds its shape in all quilted outerwear, loungewear, and infants' wear.

FORTISAN the fine denier rayon for home furnishing sheers; adds beauty and stability to decorative fabrics.

FORTISAN-36 high strength heavy denier filament rayon specifically engineered for industrial uses such as high pressure hose, V-belts, tarpaulins, etc.

TYPE-F ACETATE the new modified cross-section filament acetate that provides added luxury and elegance in draperies.





Engineered to deliver specific virtues to specific end-uses, these are "fibers without headaches," easy and economical in production, certain in performance.

They are the product of industry's most extensive fiber and fabric development program—extending from unparalleled research facilities in Charlotte, N. C., to consumer testing the country over. They are quality controlled fibers geared to today's and tomorrow's markets—part of Celanese continuing resolve to meet modern needs with truly contemporary fibers.

Celanese Corporation of America,
Textile Sales Division, Charlotte, N. C.

District Sales Offices: 180 Madison Ave., N. Y. 16.
Room 10-141 Merchandise Mart, Chicago 54, Ill.
200 Boylston St., Chestnut Hill 67, Mass.
819 Santee St., Los Angeles, Calif.

Export: Amcel Co., Inc., and Pan Amcel Co., Inc., 180 Madison Ave., New York 16, N. Y.

Celanese® Arnel® Celaperm® Fortisan® Quilticel®
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From the industry's most modern research and development plants and programs come

Celanese contemporary fibers

synthetic fabric comfort now a reality!

FABULIZED

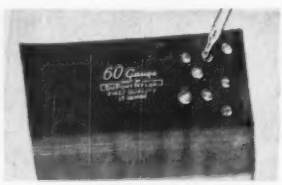
makes synthetic fabrics absorbent as cotton . . . soft as silk

More than just another finish, FABULIZED actually adds real value to synthetic fabrics by giving them the highest degree of absorbency ever developed. Independent tests prove Fabulized makes synthetics four times more absorbent. This high absorbency of FABULIZED answers the last major consumer objection to synthetics and opens the way to greater sales.

simple eye dropper test convinces customers instantly!

Test FABULIZED on your product today. See for yourself how effectively it answers the problem of absorbency in synthetics . . . how you can use the eye dropper test to out-merchandise your competition.

Water drops on FABULIZED hosiery are absorbed instantly . . in 33.5 seconds (average).



One hour later, water drops are still on the surface of the non-FABULIZED stocking welt.

SEE YOUR PROFITS GROW!
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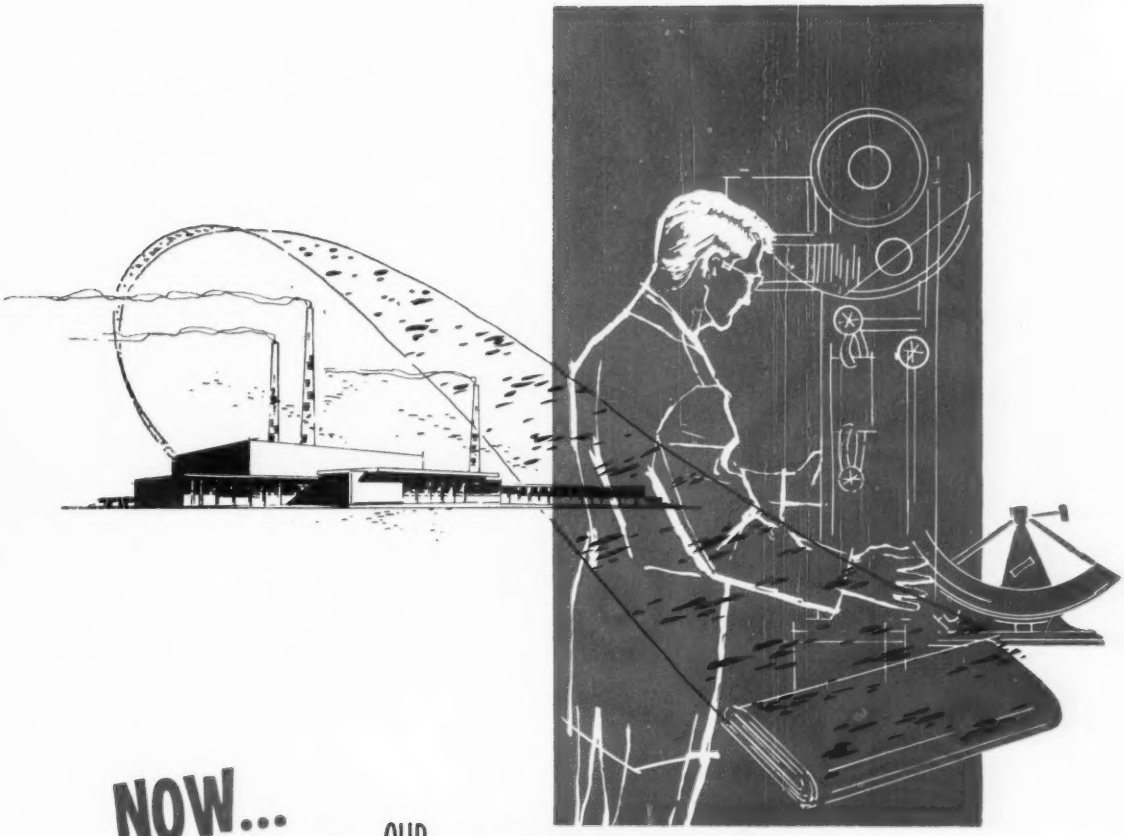
FABULIZED

The New Household Word for Synthetic Fabric Comfort

Write, wire or phone FABULIZED, INC. **518 S. Delaware Ave., Phila. 47, Pa. • Phone: WAlnut 5-2149**



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not only OUR products, but also our CUSTOMERS products are LABORATORY TESTED

The finishing plant without specific facilities for testing resin-treated fabrics can now maintain quality and be assured of meeting specifications.

Samples for all lots finished with our line of thermo-setting resins may be sent to our TEXTILE TESTING DIVISION. Complete test reports will be furnished promptly to the mill, together with suggestions for any necessary improvement in quality.

This is just another facet of our CUSTOMER SERVICE PROGRAM, available to all formulators of crease-resistant, "wash-wear", schreinered, embossed, and glazed finishes.

Send for samples of our resins together with mill-tested finishing formulae, and let us send you a sample report on your test runs.

HARTOSET E—A highly stable and efficient monomeric etherified urea resin, giving excellent stabilization and soft hand.

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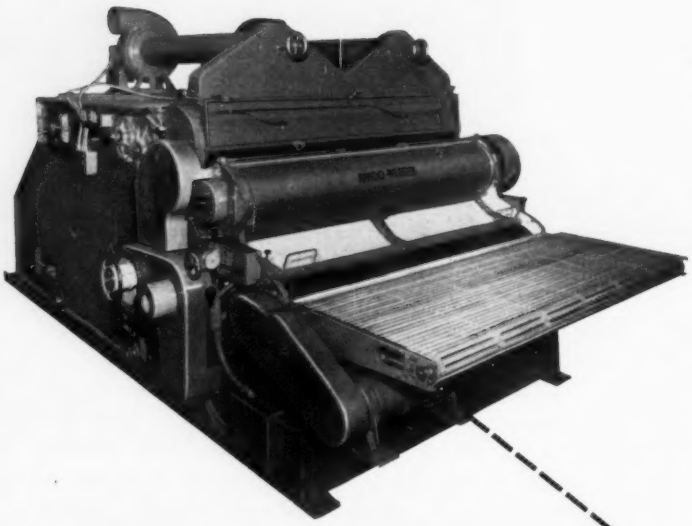
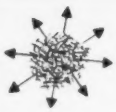
In the manufacture of Non-wovens, you get the MOST with RANDO-FEEDER® and RANDO-WEBBER®



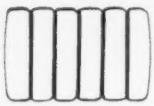
Available in 40", 60" and 84" widths

LOOK AT THESE ADVANTAGES:

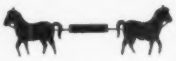


Equal strength in all directions.

No waste—at least 98% fiber returned as web



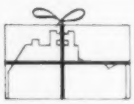
Low cost raw material



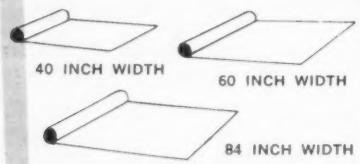
Stronger webs where delamination is diminished or eliminated. Normally entire web is formed in one layer.

Flexible—controlled with the turn of a knob.

½ oz /sq. yd TO 30 oz /sq. yd



Package unit ready to operate with all motors and guards included. Electrical, air, and water connections are all that is required.



3 models for producing random web with square, even selvages.

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CURLATOR®
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The VERSATILITY of DERGOPAL® Fluorescent Whitening Agent lets you chart a way to IMPROVED WHITES for every fiber, for every fabric

- LIQUID—easy to use
- SUBSTANTIVE
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- ECONOMICAL

Dergopal D was selected for the formula used in making the swatches appearing on the 1957 OFFICIAL WHITE COLOR CARD issued by The Warp Knit Manufacturers Association of the National Federation of Textiles, Inc.

DERGOPAL	FIBER	USE
C	For use on WOOL and SILK Can be applied in scouring or peroxide bleaching process	Produces IMPROVED WHITES and BRIGHTER SHADES. Also applicable to nylon and acetate. Where bluer cast is desired, use Dergopal D to eliminate pink cast
TC	For WOOL, ACETATE and NYLON Primarily for use in last rinse or final finishing operation	Produces BRILLIANT WHITES Minimum foaming and easy rinsing properties. Where a bluer cast is desired, use Dergopal TD
RC	For RAYON and COTTON May be applied in kier boiling, chlorine bleaching or as an after rinse	Sharpens CONTRAST between white background and colored pattern on prints. Highly resistant to chlorine bleach. Where a bluer cast is desired, use Dergopal RCX.
ST	For NYLON	Produces excellent whites which are RESISTANT TO HIGH TEMPERATURES used in setting nylon. Good light fastness.
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Serving the Textile Industry for over 50 Years

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Moving swiftly

into more

and more markets...

Eastman **VEREL**

MODIFIED ACRYLIC FIBER

It's succeeding in new fields every day! Eastman Verel, with a unique combination of softness, absorbency, whiteness and dyeability... is proving itself in all these markets:

KNITTED OUTERWEAR...
for extra comfort plus washability.

PILE LINERS...
for furry softness, ease of cleaning, resistance to matting.

CARPETS OF 100% VEREL...
for luxurious appearance, resilience and ease of cleaning.

ALL-VEREL BLANKETS...
for softness, washability and sparkling colors.

Shouldn't **YOU** be using Verel? Contact your Eastman representative.

VEREL is the trademark for Eastman modified acrylic fiber

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NOW!

Southern DURAMOLD Shuttles

For Multiple-Box Looms

Illustration of C. & K. W-3 Loom courtesy of Crompton & Knowles Corporation.

Last 3 to 4 Times As Long As Wood

Rugged DURAMOLD shuttles, the most versatile and durable molded plastic shuttles on the market, have a phenomenal performance record in numerous large scale applications. NOW THEY ARE AVAILABLE FOR C. & K. MULTIPLE-BOX LOOMS.

Most important advantages of DURAMOLD shuttles in multiple-box weaving are:

1. **The weight of all DURAMOLD shuttles of given specifications is always exactly the same.**
2. **The additional weight of DURAMOLD shuttles is particularly beneficial in these heavier, wider looms.**
3. **The shuttle width can be closely matched and held.**
4. **DURAMOLD shuttles are completely unaffected by atmospheric conditions—humidity will not cause any size changes, swelling or contracting.**
5. **Molded from remarkably strong, grainless Westinghouse Micarta, there is no splitting or splintering, and premature failures are practically eliminated.**

Only Southern's exclusive molding and manufacturing methods permit greater versatility of construction to meet your EXACT requirements, such as tip location, eye location, chamber length, shuttle width, etc.

REDUCE YOUR SHUTTLE COSTS NOW BY USING SOUTHERN DURAMOLD SHUTTLES
Ask your Steel Heddle Sales Engineer for complete details.

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GREENVILLE, S.C.
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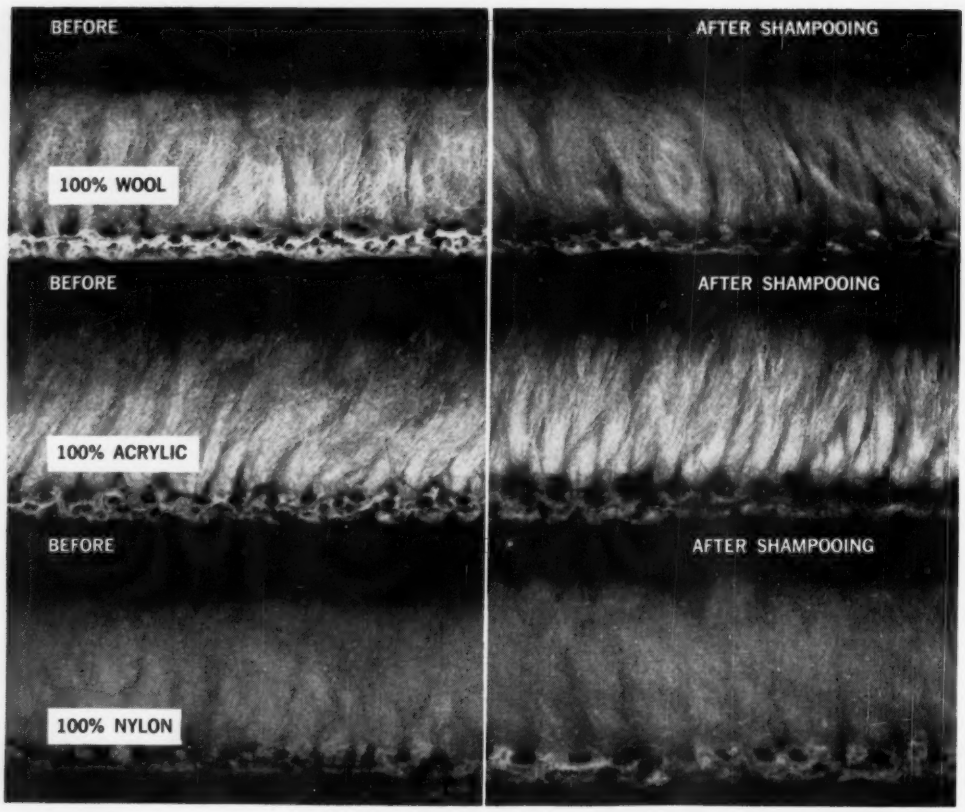
S-5729

texture retention of Nylon is superior and permanent

Three separate and distinct tests are shown here. Within each test, photos show identical (except for fiber content) strips of carpeting before and after shampooing. You will note that the texture of nylon is virtually unchanged even though it has been subjected to this treatment *10* times with rotary brush action. 100% wool, rayon and acrylic have lost considerable texture. The addition of respectable percentages of nylon produces fabrics which stand up extraordinarily well, but not as well as 100% nylon.

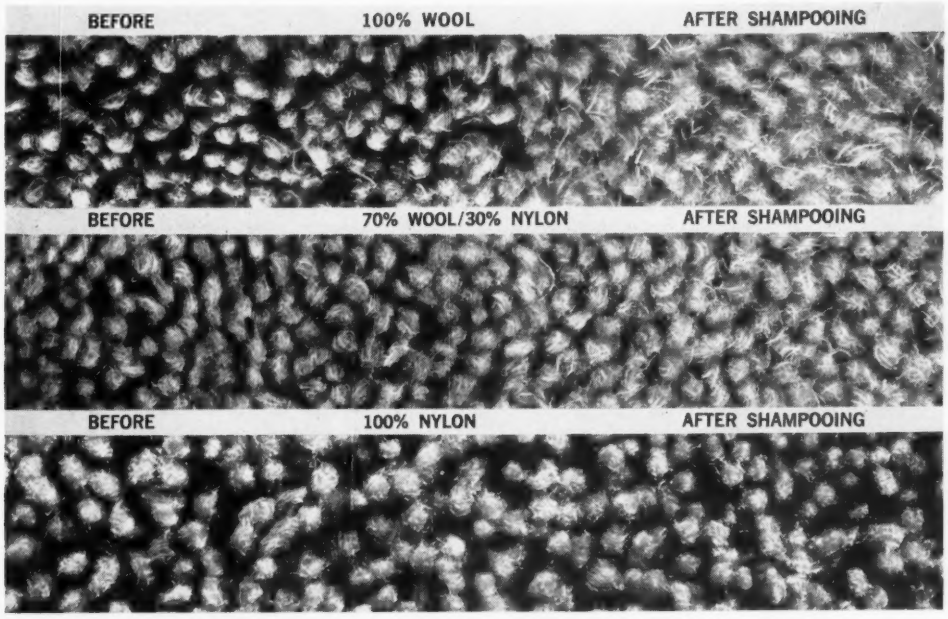
TEST NO. 1...NYLON COMPARED WITH WOOL AND ACRYLIC

CUT PILE, NOT TWIST-SET



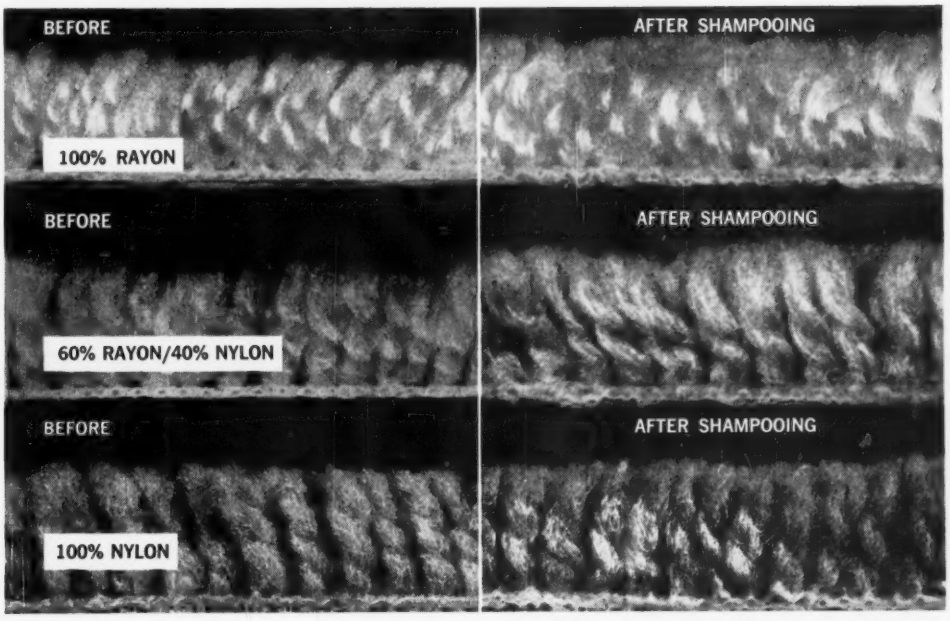
▶▶TEST NO. 2...NYLON COMPARED WITH WOOL

CUT PILE, TWIST-SET



▶▶▶TEST NO. 3...NYLON COMPARED WITH RAYON

CUT PILE, NOT TWIST-SET



THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, 500 Fifth Avenue, New York 36, New York · 627 Guilford Building, Greensboro, North Carolina

BETTER YARNS AT HIGHER SPEEDS

with HERR Conical Rings and Flyers!

For 6 oz. Wool and Dacron Blends

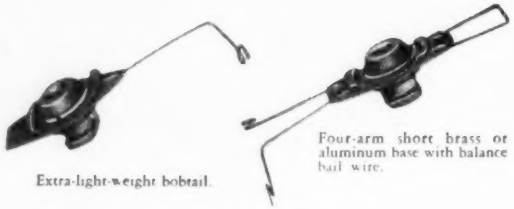
5/16" Face Conical Ring. The most popular ring to produce light count yarns at high spindle speeds.

For Medium Counts

3/8" Face Conical Ring for worsted, orlon, nylon, dacron and blended yarns of all types.

For Medium to Heavy Yarns

1 3/64" Face large diameter Conical Ring. An excellent ring for spinning and twisting wool, synthetic and fiberglass yarns for carpeting, tire cord, woolens and novelty weaves.



Extra-light-weight bobtail.

Four-arm short brass or aluminum base with balance bail wire.

Two-arm, light, long aluminum base.

Special Pollywog flyer for tire cord and heavy yarns.

Four-arm long brass or aluminum base

ACTION OF TRAVELER EQUALIZES YARN TENSION TO REDUCE BREAKAGE

Special Flyers for Helanca and Stretch Nylon Yarns

Better yarns at higher speeds are the rule with Herr Conical Rings and Herr Flyers. Clean, smooth yarns, heavier doffs, less yarn breakage, fewer knots. Designs of flyers and travelers have been worked out for handling synthetics and blends.

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Salvos of color, spaced intermittently along its entire length, give Parfé an exciting new approach to fashion. The color is impregnated in the yarn by a special process developed by American Bemberg, affording Parfé the same color fastness and fool-proof washability as solution-dyed yarns.

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Make a date to see the wonderful new showcase textures Bemberg has prepared for you . . . showing Parfé alone, combined with other yarns, overdyed, and overprinted.

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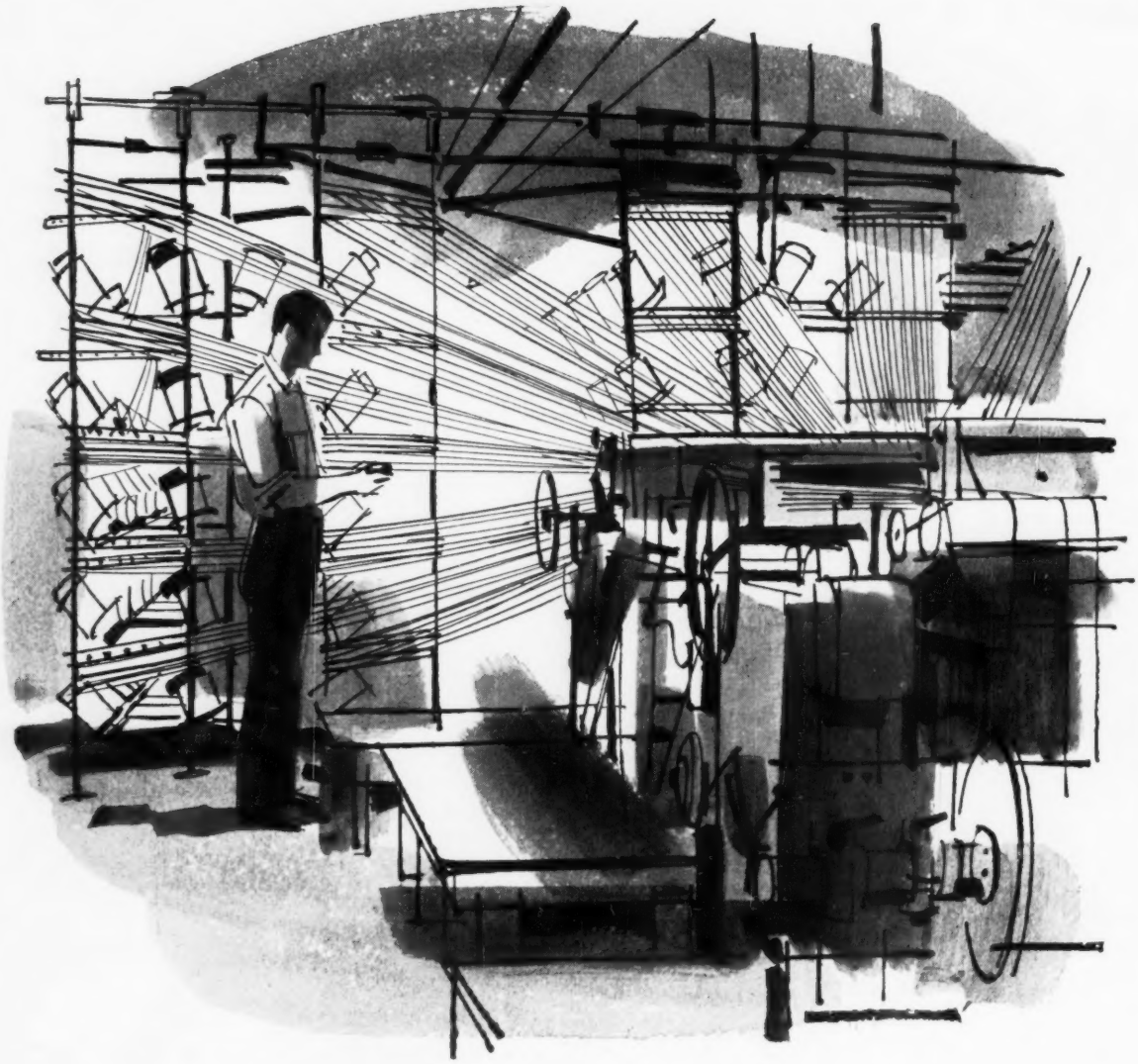

Nowhere in the textile industry can your mill problems be solved more realistically and effectively than in American Viscose Corporation's TTSD*. This is a priceless plus you get with Avisco® fibers or yarns, and you pay no more for it.

*Here in our Technical and Textile Service Department we use actual mill machinery under mill operating conditions. With such complete facilities, we can start with the fiber, open it, card it, spin it, weave it, dye and finish it. Or starting with the yarn, we can beam it or twist it, weave it or knit it, dye it and finish it. What works here will work in your mill, too.

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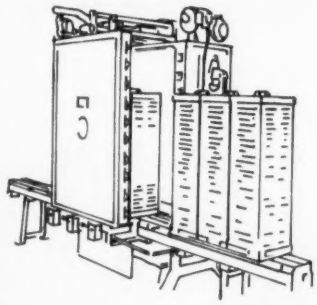

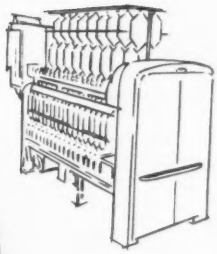

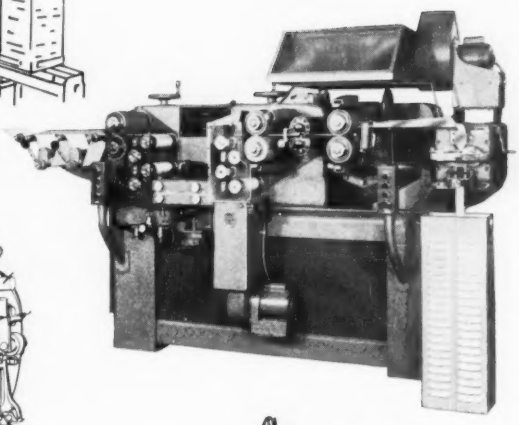

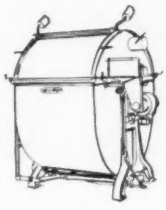

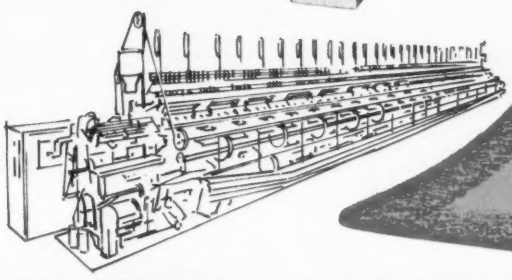

*When all ingredients — from tow to garment — are expertly selected and handled.

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Courtaulds did it! Courtaulds boiled bright red Coloray fabric together with white fabric. And the color didn't bleed, streak or stain. That's colorfastness!

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MODERN TEXTILES
Magazine

Publisher's Viewpoint

How to Lose Friends and Irritate Customers

Buyers of man-made fibers, like buyers of all important materials of industry, like to buy at the lowest market price. Often they buy in sizeable quantities, and the amounts involved in these transactions are considerable. How much they pay for fiber and yarn is a crucially important fact in calculating their costs and in planning the future operations of their businesses.

These buyers, usually representing mills, do not like to buy at a price they are assured is the lowest market price at any given time, and then learn that yarn or fiber of the same type and quality has been sold at a price lower than they paid. To learn that they have bought at a price higher than others have paid has, to put it mildly, an unsettling effect on their businesses and a decidedly unsettling effect on their tempers.

Right now among important mill executives, charged with the responsibility of buying man-made fibers and yarn, many usually well adjusted tempers, we are informed, are extremely ruffled.

Why? The answer seems to be that price uncertainty for many man-made fibers and yarns has reached a high degree of confusion. Official price lists, carefully compiled by yarn producers, such as this magazine publishes every month, no longer seem to have any relation to actual prices of yarn and fiber sold in the textile market.

The result is that mills can no longer be certain that the prices they are quoted are actually the going prices as determined by daily sales by yarn producers to others. It is reported that, in certain yarns, actual market prices, determined by sales taking place hourly, are as much as twenty cents per pound below the official published list prices of the sellers.

This would certainly seem to be an unfortunate state of affairs. Price instability, widespread trading below list prices, and frequent dizzying price fluctuations on the "lunch table exchange" is no credit to the man-made fibers industry. Traditionally the industry has offered, as one of the outstanding advantages of man-made fibers, the stability of its prices and the open, above-board manner with which prices in the past have been quoted and sales made.

Cannot this regrettable departure from the established practices of our industry be corrected? Must some fiber producers add to the difficulties and uncertainties of the present trying period for both mills and yarn producers by excessive price cutting and confusing "under-the-counter" sales of fiber and yarn?

To bring our industry back to its former reliable and dignified practices of fair and above-board price quoting, to stop the rash of justified complaints by millmen, surely requires only a little restraint, a little thought as to the best interests of both the industry and those yarn producers who may have fallen into the lamentable practice of revising their prices from day to day and hour to hour. In the long run, no one's well-being is served by erratic pricing. It is time that our industry came to its senses and returned to its highly respected (and highly profitable) policies of stable pricing.

The Right Use of "Wash-and-Wear"

"Wash-and-Wear" is a phrase certainly in the forefront of the textile industry's attention these days. It would seem that the merchandising opportunities presented by wash-and-wear apparel are viewed by many in the textile and garment-cutting industries as the most potent single sales generating idea that has come over the horizon in recent years. Retailers, too, are excited about wash-and-wear.

All the excitement about these new kinds of fabrics and apparel has given rise to an understandable and praiseworthy movement within the industry to define more precisely just what a true wash-and-wear garment is. We think that these attempts are bound to be helpful. It would not do to allow misunderstanding among consumers, and excited exaggerations and misleading statements by copywriters to kill the fat and flourishing wash-and-wear goose just to get one's hands on the golden eggs of quick (and fast tarnishing) profits.

Let us remember, while we push wash and wear for all that it is rightfully worth, that the consumers are well-disposed toward wash-and-wear apparel. But if they are misled and feel themselves taken in, wash-and-wear, now a potent merchandising theme, could all too soon lose its appeal to the public. Let us keep firmly in mind that wash-and-wear fabrics honestly and accurately handled can lead to good business for our industry for many years to come. Misused, wash-and-wear can fade away as quickly and stay as long dead as last year's grass.

A. H. McCullough

OUTLOOK IN TEXTILE MARKETING

By the Editors

A big new turn in textiles is coming

Writing Off the First Six Months—Fabric manufacturers and marketers, along with their componions-in-arms in the sales struggle, cutters and retailers, are pretty well resigned to slow business through the first half of the year. For their part, millmen expect to see a continuance of the profitless prices, curtailed production, and selling to reduce inventories that has been the market pattern for the past year or so.

Their Hopes Are on Second Half—But for the months following July, their hopes are considerably rosier, their expectations hearteningly optimistic. By that time, fabric makers and distributors expect that current policies of holding production down along with considerable draining away of cloth inventories will bring a revival in demand. With this revival, mill sales executives and converters expect a long-overdue strengthening of prices.

The Unpredictable Element—In these calculations, the direction the country's over-all economy will move is the uncertain, the wholly unpredictable element at this writing. The tendency at the moment is to regard the current business decline as more likely to be deeper and more protracted than was the outlook a month or so ago. A number of leading economists, prodded by Government and business to offer prognoses of the extent and duration of the recession, have stated recently that recovery may be longer in coming, and the recession more severe than earlier diagnoses indicated.

What It Means for Textile People—Meanwhile, fabric manufacturers, yarn producers and garment cutters are faced with day-to-day problems of doing as best they can for their own individual companies. In a word, they are casting about energetically for ways to increase sales. One big and basic thing they can do while waiting for the patient, the over-all U.S. economy to recover its health and vigor, is to take thought as to how they can give consumers better products at lower prices.

Taking a Long Look at Quality—In the opinion of some textile veterans, the current slump will result in a many faceted movement to improve the quality of all textile products without adding more to price tags. The hard fact is that the serviceability of many textile products from neckties to floor coverings has not been anything to be proud of in recent years. What is needed is a strict tightening up all along the line from fibers to finished consumer goods. After all, when all the returns arein, serviceability to consumers is the measure of the value of a textile product. Promotional razzle-dazzle, emphasis on fashion, and talk about "forced obsolescence" may have their contribution to make, but they cannot take the place of good quality, long wear and the wonderful feeling (in the consumer's mind) that he has got his money's worth from a garment or home furnishing fabric.

Keep Prices Down, Get Quality Up—Thoughtful people in our industry who have kept in touch with the consumers' point-of-view are strongly inclined to believe that the coming era will bring an overwhelming new emphasis. The overriding drive will be to make textile end products better and better still. Under the pressure of consumers who will insist on getting their money's worth or no sale, the industry will have to work harder all along the line to see that textile products are better made, wear longer and pass through laundering and dry cleaning satisfactorily. This means that everybody getting his living making and selling textiles will have to do his individual part to put the highest kind of quality in the product—and then be able to sell it to consumers at current or even lower prices. This tightening up process is already under way. You will see more of it as time goes on.

By Jerome Campbell
EDITOR, MODERN TEXTILES MAGAZINE

Early in his career as boss of a big lace curtain mill, Harold J. Megargel acquired a taste for calling on his firm's customers and finding out what they liked. Today he is putting his wide knowledge of home furnishings to good use to develop new products for Scranton Lace Co.

Harold J. Megargel

The millman who loves to sell

THERE was a time in the United States of America when every window looking out of every self-respecting householder's house was framed in lace curtains. These gauzy draperies with their intricate floral designs were a symbol of respectability, if not of overwhelming prosperity (they could be bought as cheap as two for a dollar); and the business of manufacturing lace curtains was considered a solid business, a business with a great future, a long vista of never diminishing prosperity.

In the midst of this time (the year was 1919) an energetic young resident of Scranton, Pa., freshly discharged from the wartime U. S. Army, was prospecting around for gainful employment, a job with a good future. His name was Harold J. Megargel, the son of a well-known insurance man in the anthracite city. "They're looking for a young fellow to work in the office over at Scranton Lace Co.," his father told him one day. "Why don't you go out there and talk to Mr. Belin, the boss?"

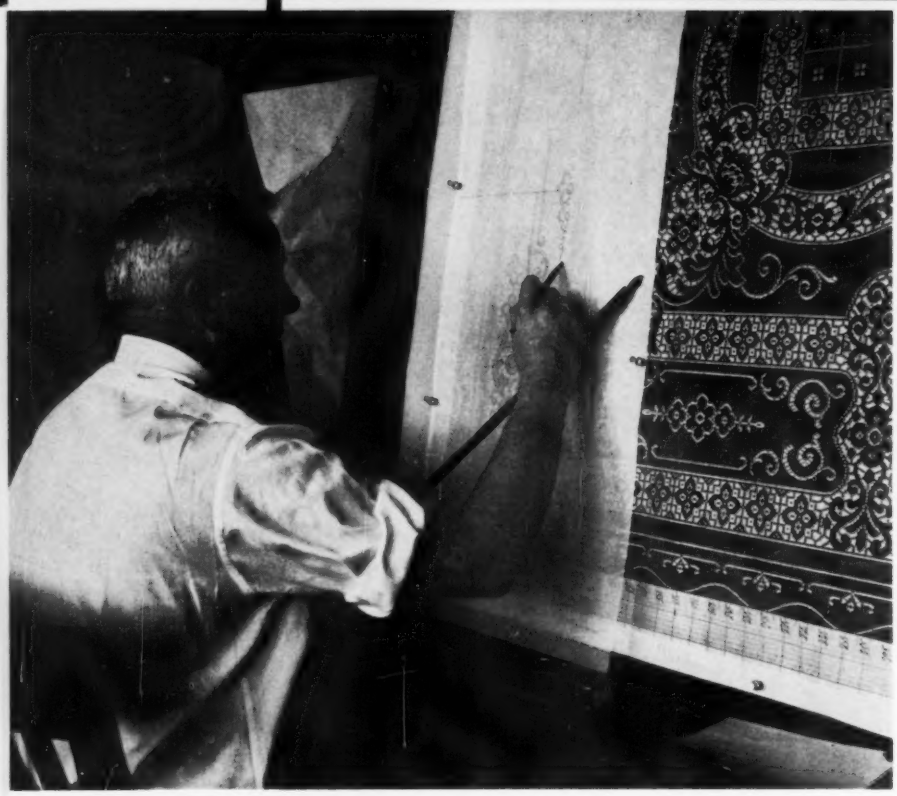
Young Megargel asked for an appointment and was told he could see the head man the next afternoon at four. Then, as he is now, a restless and peppy fellow who hated to sit still, Megargel whiled away the early afternoon at a roller skating rink in downtown Scranton. He had so much fun whirling about on skates and sliding along the rough board floor when the skates went out from under him that, before he realized it, the clock reached a quarter of four. Fearful of being late, Megargel kicked off his skates, jumped on a passing street car and was out at the Scranton plant in time for his appointment.

It was not until he was running up the broad flight of marble steps that stretched impressively across the inner lobby of Scranton Lace's fortress-like building that he realized there was something wrong. He noticed for the first time that the whole right side of his blue serge suit (his best) was whitened by the powder, or rosin, or whatever it was, that they strewed liberally on the floors of roller skating rinks in those days to make the wheels spin faster. What was worse, the fabric was studded with tiny splinters from the floor on which he had taken several hilarious slides a little while earlier.

Before Megargel could brush himself off, he found himself shown into the presence of president Paul B. Belin for his job interview. To hide the chalk stains and splinters on his right side, Megargel went through the whole interview turned edgeways to his interviewer, a position which, he now recalls, must have made him seem a somewhat eccentric fellow to his prospective employer.

The peculiar twisting and sideways fidgeting of the young man in front of him finally was too much for Belin. "What in the world is the matter with you young fellow?" he asked. Megargel told him about the sliding about on its splintery floor a short time earlier. Relieved to find that there was a plausible explanation for Megargel's sidestepping and side-view-showing, Belin told him to come to work the next day.

On his first day on the job, Belin led Megargel to a stack of order forms about 18 inches from the table top. "File them" he told his new clerical helper.



ARTIST AT WORK—Robert Padmore, Scranton Lace's chief designer, works on a new design for a Nottingham lace dinner cloth. These cloths are one of the major products of the company, the largest Nottingham lace producer in the U. S.

Megargel diligently filed away for two days. At the end of his second day he noticed that the pile was almost a foot higher than it had been when he started.

This was too much for young Harold J. Megargel. After all, he was a man who had just completed a strenuous hitch of honorable service in the tough 22nd U. S. Infantry; he was convinced that life and a career had more to offer than a stack of order forms that grew higher the harder he worked to file them.

"This job is not for me," he told President Belin, pointing out that the stack of forms grew bigger the more he filed and filed. Paul Belin was an unusual man, and always open-minded as his great work in building up Scranton Lace testifies. Instead of firing his new clerk, he agreed with him, and promised to find for him livelier and more challenging tasks. First he sent him out to work in the mill alongside the machine hands so that he could learn by doing all the complicated tasks that go into making lace on Nottingham machines.

When he was sure that Megargel understood thoroughly all the steps in lace making, Belin began to use him as an efficiency and time study man whose job was to find out ways to get things done better and at lower cost. What Belin had in mind, Megargel realizes now with gratitude, was to give him a solid training in every important aspect of lace curtain manufacturing. It was Belin's own way of providing management leadership for his company for future years, a training program that succeeded admirably. Megargel was not the only one to benefit from this form of training. Belin had several other young men under his wing for similar practical on-the-job education. Among them was N. G. Robertson who came into the company about the same time as Megargel and who succeeded Belin as president. Robertson is now retired.

Training under Belin's system included acquisition of experience in selling as well as manufacturing. From time to time in those years of the early 20's. Belin would send Megargel along with one of the salesmen out on the road to see how the crucial job of selling curtains was done. On one of those first trips Megargel had the wonderfully pleasant experience of booking a really tremendous order.

He went with a salesman to Chicago to call on Spiegel's mail order house, an old and important customer for Scranton's lace curtains. On this trip the

(Continued on Page 55)

CRAFTSMAN AT WORK—This veteran Scranton worker is cutting pattern cards for the Nottingham lace machines.

Man-made fibers take over carpets

CASE HISTORY OF FIBER CHANGE—D. H. Colville (standing) and Robert Sutton of Roxbury Carpet Co. compare a fan of 12 swatches representing Roxbury's complete line of only 7 years ago with the current line of 50 different fabrics surrounding them. Once made entirely of wool, Roxbury carpets now include nylon, acetate, rayon and Acrilan.

BY THE EDITORS

MAN-MADE fibers are now firmly established in the carpet industry and are approaching equality with wool as measured in poundage consumed. As measured by the ability to provide the sales-producing excitement of new and dramatic colors, styling and performance, the chemical fibers have undoubtedly taken the lead in floor coverings. These in the main, are the impressions of trade-wise observers at the January home furnishings market last month in Chicago.

The interest among wholesalers and retailers who visited the showrooms of mills and the displays of yarn producers at the Merchandise Mart and elsewhere in the city was largely centered on nylon and Chemstrand's Acrilan. Although Acrilan was first presented in carpets only last year, nine manufacturers already have the fiber in their lines. This rapid acceptance in an industry well known for its conservatism has made Acrilan something of a wonder throughout the industry and has aroused manufacturers' and retailers' interest in the fiber.

The growing importance of nylon in the forward-thinking of carpet manufacturers is illustrated by the fact that Barwick Mills, one of the major tufters, had 19 lines of nylon carpets in its total of 22 lines. This is only one example of nylon's present popularity with carpet mills. Virtually all tufters and weavers of soft floor coverings have nylon prominent in their carpet wares for the year ahead.

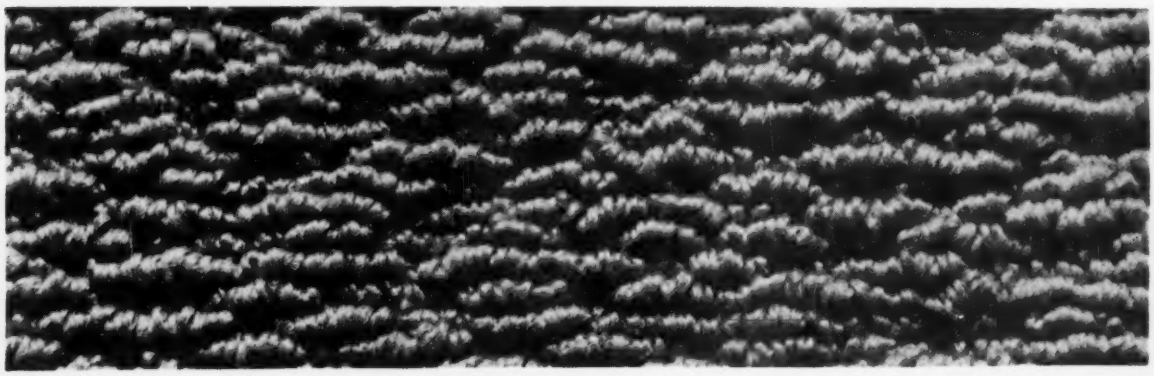
It is no exaggeration to say that the merchandising possibilities of nylon, both in the 100% form and in blends with wool, was the dominant theme of the Chicago floor coverings market. Some fears were expressed by both nylon producers and quality-conscious millmen that the rush to nylon might bring downgrading, the use of unfit nylon waste and even garnetted nylon stockings and other nylon rags, to the ultimate detriment of this fiber in floor coverings.

Among the new fiber trends at the market was also the increased use of acetate largely in lofted solution-dyed filament form. In some cases, acetate is being blended with rayon as in the "Charm-Tone" fabrics of Charm-Tred Mills. Another "first performance" at the market was the introduction by Callaway Mills of a carpet made of 100% Verel, Eastman's new acrylic fiber.

For rayon, now well-established as a carpet fiber, the major newsworthy development at the market appeared to be the tendency among mills to upgrade their rayon tufted fabrics. An outstanding example of this trend is Bigelow's new "Reliance" carpet, a tufted fabric made with solution-dyed rayon staple fiber in a tweed texture and a wide range of colors. The quality of this carpeting is indicated by the fact that it has 39 ounces of pile yarn per square yard.

(Continued on Page 44)

ACETATE UNDER FOOT AGAIN—The strong return made by acetate in carpets is indicated by this high-low loop pile carpet with a bark texture. It is 100% Eastman acetate lofted filament yarn, solution-dyed. Named "Chrombark," the carpet is produced by Callaway Mills.



New high strength rayon staple

A NEW "strong" rayon staple fiber has appeared on the textile scene. And its introduction by North American Rayon Corp., a subsidiary of Beaunit Mills, Inc., marks the first time that this man-made fiber producer has offered rayon staple. Previously North American has produced only filament yarn. The new fiber will be turned out at North American's Elizabethton, Tenn., plant; volume of 7½ to 10 million pounds is expected this year.

According to Charles P. Bertland, vice president in charge of sales, the fiber is currently being evaluated by a number of mills with extremely gratifying results. It is available in 1, 1½ and 3 deniers at 40 cents a pound.

The noteworthy properties of the new fiber, Bertland reports, are tensile strength comparable with cotton when the new fiber is either wet or dry; high abrasion resistance—test fabrics have withstood as many as 750 cycles on the Stroll abrasion tester; good blending properties with rayon and Dacron, the Du Pont polyester fiber. For blending purposes, especially with Dacron, Bertland also cited the fiber's low cost and low waste factor as compared with cotton.

The new high strength rayon staple fiber will be made in two forms: Narco No. 1 and Narco No. 2. The first is a high bulk version of the fiber. Its specific properties make it, Bertland says, "a wonderful fiber for blends with cotton in knitwear, suitings, shirtings and slacks where a certain degree of loft and a soft warm hand are desirable. Experimental work, he stated, indicates that the best results in blends will be obtained when the Narco No. 1 amounts to no more than 35% of the total fiber content of a fabric.

Narco No. 2 has the same strength factors as No. 1, but reacts conventionally with regard to shrinkage and bulking. Its elongation properties are 23.2% dry and 29.8% wet, and these characteristics, Bertland said, make it especially valuable for blending with Dacron. The tensile strength in grams per denier of Narco No. 2 is 4.4 dry and 3.4 wet. The fiber in the 1 denier size has been spun successfully into 60s yarn and experiments are going on to use it in yarns as high as an 80s count, according to Bertland.

End uses in which it is expected that the No. 2 type will be particularly successful are industrial fabrics such as ducks, osnaburgs, beltings, and coated fabrics.

Appearing at a time when the cotton manufacturing industry is concerned over a shortage of better grades of cotton, the new strong rayon, Bertland noted, offers mills an opportunity to escape from their dependence on cotton. Fabrics containing the new rayon combined with cotton can be finished with standard cotton finishes, such as wash-and-wear, to yield finished goods equal and perhaps superior in performance to all-cotton cloths, he pointed out.

Cellulosic Textiles to Be Discussed

New developments in cellulosic textiles and evaluations of their future will be discussed at a symposium at the 28th annual meeting of Textile Research Institute of Princeton, N. J., at the Hotel Commodore, New York City, on March 13-14. Six papers, covering viscose rayon, acetate and cotton, will be presented at the symposium which will take up the second day of the meeting. Dr. Paul B. Stam, director of research for J. P. Stevens and Co., Inc., will serve as moderator.

The papers dealing with cellulosics to be presented are: "Non-Textile Applications of Viscose Rayon," by Dr. John A. Howsmon, manager, basic research, American Viscose Corp.; "Whither Rayon," by Dr. John Wharton, research director, Courtaulds (Alabama), Ltd.; "Predicting Commercial Acceptance of a Fiber," by Joseph L. Barach, applications development manager, Celanese Corp. of America; "Recent Developments in Lofted Acetate Yarns," by R. E. Semmler, fabric development manager, Eastman Chemical Products, Inc., and Richard F. Dyer, senior engineer, Tennessee Eastman Co.; "Some Concepts of Cotton Research," by George S. Buck, Jr., National Cotton Council of America; and "Chemical Modification of Cotton: Progress and Current Status," by C. H. Fisher, director, Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Agriculture Department.

The first session of the meeting on Thursday, March 13 will open with a summary of TRI research in 1957 presented by Dr. Howard J. White, Jr., the Institute's director of research. He will be followed by Dr. Frank R. Charles, director of rayon research, Industrial Cellulose Research, Ltd., Hawksbury, Canada.

At the luncheon on March 13, Dr. Raymond H. Ewell, vice chancellor of research of the University of Buffalo will speak on "research and education in Russia." He has just returned from a trip to the Soviet Union where he visited research institutes, universities and manufacturing plants.

The first paper on the Thursday afternoon session will be "Synthetic Fibers in Industrial Uses" by Dr. J. M. Swanson, Director, Industrial Products Research Laboratory, E. I. du Pont de Nemours & Co., Inc. The second paper will be a presentation by Dr. R. A. Coleman and W. H. Peacock, of the Research Division, American Cyanamid Company, on "Ultraviolet Absorbers."

The registration fee for the meeting is $8 and luncheon tickets are $5 each. Reservations should be made by writing or telephoning the Textile Research Institute, Box 625, Princeton, N. J.

Ethylene Diamine Output

Commercial output of 98% ethylene diamine is now under way, the Organic Chemicals division of Olin Mathieson Chemical Corp. has announced. The division said that 85-88% and 90-93% of ethylene diamine will still be produced and that there will be no change in the availability of polyamines 333 and 910. Principal users are makers of textile finishing and polyamine resins, synthetic waxes, rubber chemicals, fungicides, pharmaceuticals and chelating agents. The Organic Chemicals division will market ethylene diamine and polyamines, formerly handled by the company's Industrial Chemicals division.

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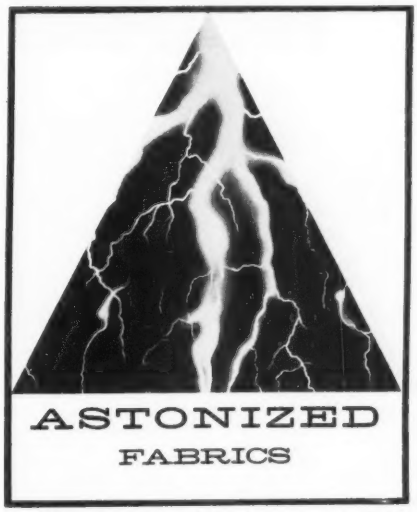

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REPORT FROM EUROPE

BY SPECIAL CORRESPONDENT

British invoke anti-dumping laws; cotton profits up

LONDON—The British Board of Trade has taken its first step against anti-dumping under the Customs Duties (Dumping and Subsidies) Act of 1957. British manufacturers of silicones asked the Board of Trade for relief against imports of polymethylsiloxane fluids manufactured by the French Societe des Usines Chimiques Rhone-Poulenc.

The Government decided that such dumping is causing material injury to a British industry and duly imposed on anti-dumping duty of four shillings (56¢) per pound on the silicone fluids and emulsions.

UK Unions Seek Wage Rise—Trade unions in the British wool combing, spinning and weaving industries are seeking "a substantial increase in present wage rates." The 150,000 wool trade workers received a 6% boost in January, 1957. Negotiations are to be held with the National Wool (and Allied) Textile Employers' Council.

Lancashire Profits Up—Official 1957 profits' figures reveal that Lancashire cotton and rayon companies, which own more than 300 mills, registered a 33% rise in profits last year. Dividends, however, were down, and reserves increased. The published profits exceeded 8 million sterling ($22.4 million). This was over 2 million sterling better than 1956.

British Nylon Cutback—British Nylon Spinners, Ltd., cut back shipments by 12½% during February, but normal yarn deliveries were due to be resumed this month. UK nylon consumption was said to have been exceeding production for the past nine or 10 months with the difference being made up from Europe. Continental surpluses are now about used up, and a more normal domestic market is expected starting this month. . . The company's new Doncaster, 4 million sterling ($11.2 million) plant is slated for operations next Fall or early Winter.

ICI Looking Eastwards—Imperial Chemical Industries, Ltd., will broaden its interests in India, Sir Alexander Fleck, ICI chairman, announced. The company—along with Courtaulds, Ltd., and several other textile manufacturers—is also reported to be interested in developing business with the Soviet Union.

ICI will lift its Indian investments by 9 million sterling ($25.2 million) over the next 15 months by putting up three chemical plants for Indian companies with which it is associated. The figure may later be raised to 12 million sterling ($33.6 million). The companies are: Atic, Ltd., Bulsar; Alkali & Chemical Corp. of India, Rishra, and Indian Explosives, Ltd., Gomia. The latter is owned jointly by ICI and the Indian Government.

Russian Talks Inconclusive—The Russians during the past few years have sporadically shown interest in developing better relations with the British textile industry. Recently, they sent a special textile mission, headed by Q. V. Klentsov, of the Soviet Trade Ministry, to pursue the matter again.

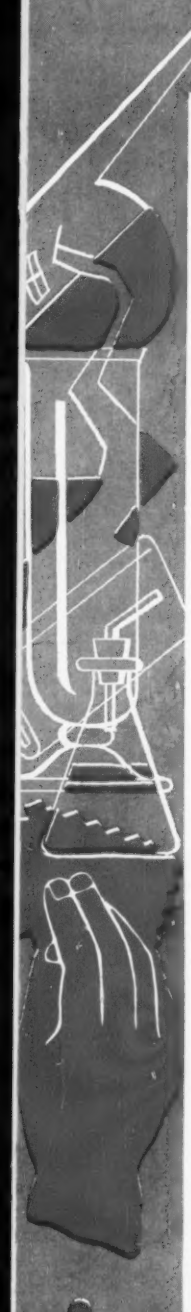
Reports leaking from the closed British-Russian talks indicated Moscow was interested—and had 20 million sterling ($56 million) to spend—in equipment for an acetate plant and an ICI license for Terylene polyester fiber. The Russians have always regarded this kind of East-West trade talk as good propaganda whether or not they subsequently result in firm contracts.

Quality Promotion Pushed—The International Association for the Fastness Label, Felisol, which has headquarters in Zurich, Switzerland, is pushing ahead with promotion on fastness to light, washing and weathering. They now have 16 members: In Germany—Badische, Bayer, Cassella and Hoechst; In Switzerland—Ciba, Durand and Huguenin, Geigy, Rohner and Sandoz; ICI in Britain; In Italy—A.C.N.A. and Industria Chimica Dott. Saronio; In France—C.F.M.A.; in Holland—Chemische Production Vondelingenplaat, and Du Pont and General Dyestuff in the U. S..

A booklet has been written in English, explaining that Felisol fastness labels will apply to yarns, fabrics, and knit goods made of rayon, cotton, linen, hemp and ramie. The 14 European Company pattern cards are due to be ready shortly, the two American patterns later on.

(Continued on Page 69)

DYEING and FINISHING SECTION



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BETTER RAYON SKEIN DYEING

By Leslie L. Walmsley
AMERICAN VISCOSE CORP.

SKEIN DYEING in some form is as old as history and until fairly recently was almost a family affair in which the tricks and arts were handed down through the generations. It must be remembered that the art and skill was usually centered around the ability to dye shades of unique colors or fastness and had nothing to do with latter day problems. Indeed, practically all skein dyed fabrics were multi-colored because it was not possible to guarantee evenly dyed yarns or good matches from lot to lot.

The requirements of the dyer today are totally unrelated to those above as the advancement of color technology has provided the dyer with precision dyes with which he can predetermine fastness, and to a large degree, level dyeing properties. At the same time, the mechanical development of dyeing machines has made is possible to faithfully reproduce colors on a mass basis.

In particular, the dyer of rayon skeins has special problems due to two reasons. The first is the demand of their customers for very fine high filament count rayon skeins, each skein of 8 ounce in weight having 28,000 yards. Tangling is an everpresent problem as is the disruption of the filaments causing fluffy spots, both of which cause trouble in winding and create poor quality. The second reason is the type of machine used to dye rayon skeins. This will be described a little later.

The specifications which the rayon skein dyer must meet today are basically as follows:

1) Price
2) Level dyeing properties
3) Windability
4) Minimum number of breaks
5) Lack of fuzziness in dyed skeins

Usually price is dependent upon all of the other factors listed.

The most important factor in a skein dyer's work is windability. This is true in fine deniers from 150 down and particularly so in 75 and 100 deniers which are usually vat dyed and, therefore, required a much longer immersion treatment. For example, a 100 pound batch of 75 denier rayon will take approximately 1 hour total time per dyeing. This can be done by one man. It will take a winder two to three days to wind this amount and, if the winding is bad, can take over six days.

In heavier deniers, the problems are quite often those of level dyeing. In vat colors another problem are white specks which often show after knitting and quite often are responsible for expensive redyes with the consequent deleterious effect upon quality.

The equipment most widely used for skein dyeing is the Cascade machine. There is no question of the superior efficiency of this machine over any other type for processing all deniers of rayon. However, because of the Cascade machine's unique method of processing, it carries with it resulting problems. There is a tendency to "blow" the skeins: that is, to make them fuzzy by blowing the filaments apart. This creates winding difficulties, also, the skeins are apt to be tangled if care is not used. In heavier deniers the hazards of speckiness are much greater on the Cascade dyeing machine than, say, an immersion type. The risk of poor winding when redyeing on the Cascade machine is much greater than when using other types. However, the increase in efficiency of the machine over other types has more than offset the risks to the extent that, as noted above, it is now the accepted type machine for skein dyeing.

It is possible by skillful manipulation of the machine to minimize the risks above mentioned. First it is necessary to know the problem. The Cascade machine operates as follows:

The dye is pumped from a reserve bath through a perforated horizontal tube. The perforations are all on the topside of the tube. The pump pressure is such, that at maximum efficiency, 64 gallons of dye liquor per minute is pumped through each arm. Approximately 10 pounds of yarn is placed on each dyeing arm. There is provided a turning mechanism in the form of an auxiliary arm which changes the position of the yarn on the dyeing arm at certain intervals. Most dyeing machines turn the yarn every 30 seconds; this, however, can easily be changed to any cycle required. Pressure can be regulated from almost zero flow to the maximum of 64 gallons per minute.

It would seem then, that here is the ideal dyeing machine equipped with every mechanical safeguard as far as quality is concerned. It must be remembered, however, that these machines are in constant use for many years, sometimes 24 hours per day. As a result of normal wear, pressure regulating equipment gets worn and varied pressures result. This can cause blown skeins, because the basic cause of poor winding is too much pressure exerted on the yarn during the initial stages of dyeing. Again, much depends upon the individual operating the machine. A careful operator will apply the pressure gradually, but this important factor is often overlooked in a desire to obtain production.

The writer's experience has led him to offer the following recommended dyeing procedure for obtaining superior winding properties.

1) Load the arm with ten pounds of yarn.
2) Fill the dyeing machine with 8-9 inches of water.
3) Add required amount of caustic and hydro.
4) Apply the pressure to the lowest consistent with liquor flowing through the tube. Thoroughly wet out the yarn before turning.

(Continued on Page 42)

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5) Set the turning mechanism on intermittent operating clockwise. Do not change the direction. Turn every 30 seconds, four turns.
6) Add dye and, if needed, retarding agents.
7) Raise pressure slowly to maximum. Run 5 minutes cold, raise to required temperature in 10 minutes. Sample for shade.

Whenever the machine is stopped for purposes of shading or new baths, the pressure arm should always be applied gradually and should be permitted to stand for a few seconds before turning.

Direct dyes should be dyed as follows;

1) Place the yarn on the arm.
2) Fill to 8-9 inches of water.
3) Heat to 180-190°F.
4) Add dye and necessary auxiliaries, mix well.
5) Apply pressure gradually and let stand until wet.
6) Set turning mechanism on intermittent operating clockwise on a 30 second cycle.
7) Slowly increase pressure to maximum.
8) Run 5-8 minutes. Add salt while the machine is in motion.
9) For difficult to level dyes, add salt at intervals of one minute over four additions. Run 5 minutes. Sample.

Plastic Cover Solves Problem

It has been previously stated that in heavier denier yarns, the problem is white specks in vat dyed yarns. This occurs in 300 denier yarns and upwards. This can be minimized by boiling the yarn for five minutes prior to dyeing with 5% caustic soda. Even this treatment is not sufficient to completely eliminate this troublesome fault. Some dyers have, as a last resort, topped the vat dyes with a fast to light direct color. Others have had to employ costly, time consuming procedures. This is particularly true in 600 and 900 denier yarns.

The Dyeing and Finishing Division of American Viscose Corp. undertook a study of this problem and developed a plastic cover which has virtually eliminated the difficulty. The covers are slightly wider than the dyeing arm and are non-porous. They are open at each end and, during the dyeing cycle, rest upon the yarn being dyed. The weight of the dye liquor flowing to the bottom of the covers gives added weight thus exerting a pressure upon the yarn. This pressure working against the flow of liquor through the dye tube has the effect of pressure dyeing in a package machine.

During experimentation, it was found that the covers had additional values. One of the more interesting was that, in vat dyeing, the cost of caustic and hydro could be cut by one third and the reduction bath was much more stable. This, of course, is because the liquor is not nearly as much exposed to air. In addition, the dyeing was more level as the pressure tended to force the dye more evenly across the face of the arm. It was also found that, in fine deniers, the winding properties were improved when the precautions mentioned above were observed. An additional advantage is savings in steam due again to minimum exposure to air.

Even with the use of plastic covers, winding still remained a problem. Moreover, it was one which varied in intensity from dyehouse to dyehouse or within a dyehouse or even from lot to lot. There was no pattern. It seemed that basically the fault was that of the force of dye liquor projected against the inside of the skein. The fact that most blown areas were on the inside of the skein and that the last quarter of the skein is much more difficult to wind seemed to bear this theory out.

What was desired then was an open meshed cover over the perforated arm. This would effectively break the spray or jet of dye liquor without impeding the flow of dye liquor. Experiments along this basis have shown very promising results and indicate that the problem of poor winding can be virtually overcome. These covers must be inexpensive, easily applied and replaced, and made of material that will not normally dye with those dyes used in rayon skein dyeing.

Both the plastic covers and the perforated arm cover are protected by patent application. They are available to the trade. *Readers may obtain the name of the manufacturer of these covers by writing the editors.*

It is the writer's opinion that practically all winding problems initiate in the dyehouse. However, there are a few precautions which can be of service after dyeing.

1) The dyed yarn should be tightly wrapped in soft cotton or rayon cloths before extracting.
2) The yarn should be well extracted.
3) The yarn should not be dressed when hanging on the drying arm. This is a bad habit which is almost universally practiced.

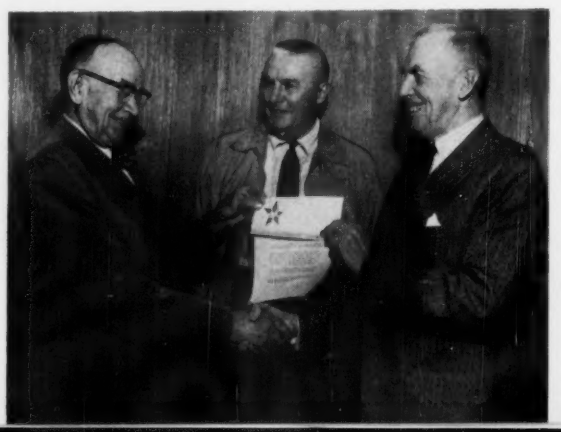
Banging the yarn on the drying arm can only do one thing, and that is to break ends. It is admitted that the yarn looks prettier on the arm when dressed. But fine feathers do not make fine birds. In the interests of good winding, dyers, should not dress the yarn. Furthermore, after drying there is no worthwhile purpose in dressing the yarn. The winder will snap it out when she prepares it for the winding frame and that is all that is needed. Dressing the yarn costs money and accomplishes nothing.

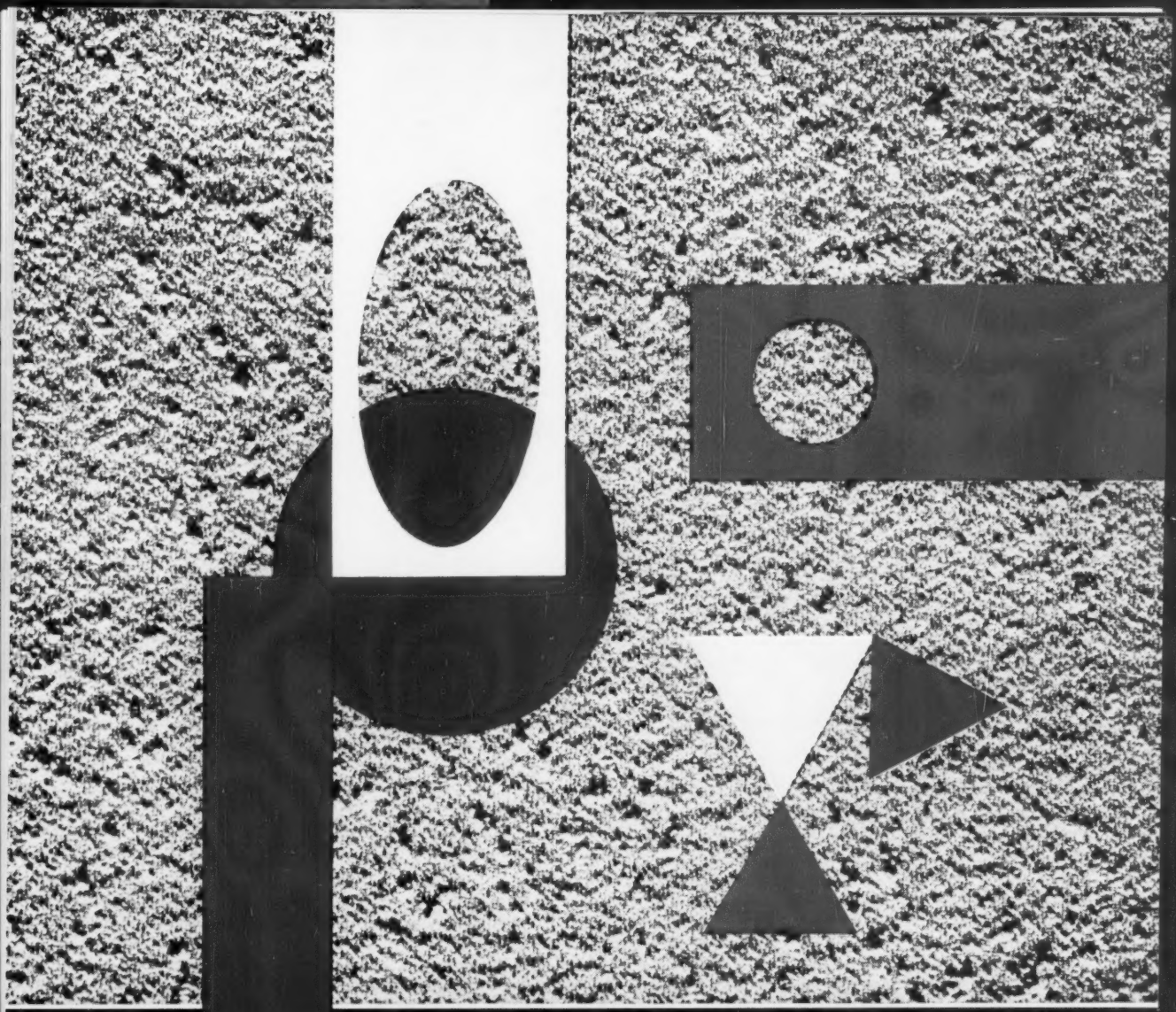
It would be indeed gratifying if I could say that, after observing all of the foregoing do's and don't's perfect winding and entirely level dyeing will result; but, alas, that is not so. The dyer still will continue to be plagued with problems. The recommendations given here, however, will help and will pay.

Globe Honors 50-Year Men

Four "50-Year" employes recently were honored by the Globe Dye Works Co., Philadelphia, Pa. Each of the quartet, which included William Goodis, George Radcliffe, George Kraft and William Lauchli, received a $500 Savings Bond.

MAN OF THE HALF-CENTURY—William Goodis of Globe Dye Works' sales department (left) receives congratulations and a $500 U. S. bond from H. T. Greenwood, Globe president while Paul Greenwood, treasurer, looks on.





ASTRAZONS

a constantly expanding
range of dyestuffs
ideally suited for acrylic fibres

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A DIVISION OF VERONA-PHARMA CHEMICAL CORPORATION

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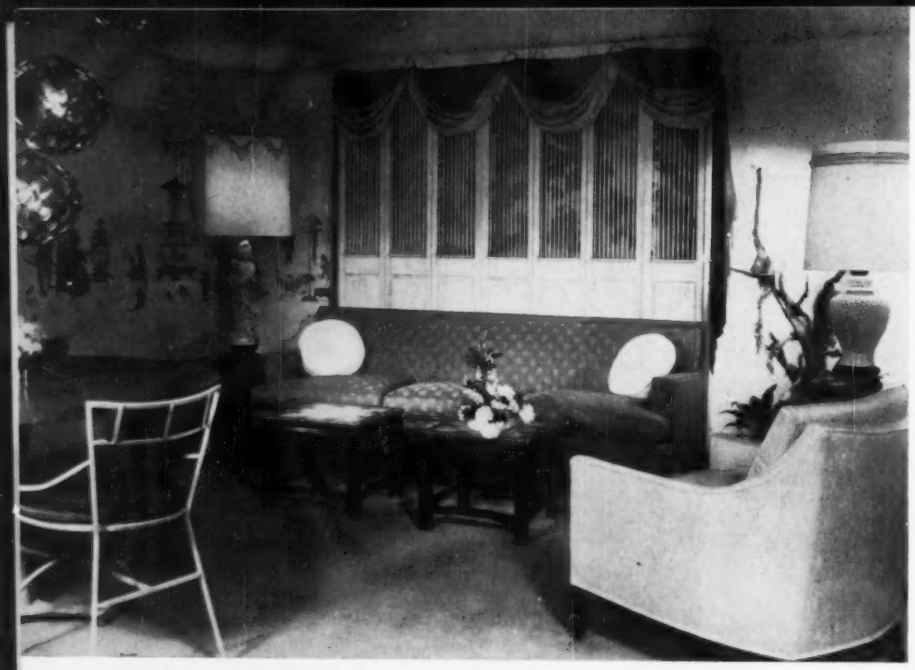


AN ALL-DU PONT ROOM—The uses of man-made fibers in home furnishings are vividly shown by this living room set up by Du Pont at the Chicago market. Carpet and furniture upholstery is nylon; drapes are Dacron-silk; pillows are covered with nylon and filled with Dacron fiberfill.

Scatter rugs of acrylic fibers with a deep pile "furry" feel are reported a big success in stores

Man-Made Fibers in Carpets

(Continued from Page 33)

Another example of the use of rayon in a carpet of better-than-average-quality is Masland's "Highland Fling", a looped pile carpet of 70% American Viscose's Super L rayon and 30% wool. This fabric has the unusual feature of being made by knitting.

The increasing variety of fibers used in carpets along with the inevitable welter of claims of superiority and clamorous babel of promotional effort by proponents of each of the fibers has made its impression on carpet distributors and retail buyers. Some complain about the "confusion" bred in their minds by the growing number of carpet fibers and their competing claims of excellence.

Other distributors, more tough-minded, expressed the conviction that in the future, they would have do a little more home work to keep up with the names and claims, the functional properties and other characteristics of the growing list of fibers used in carpets. Once we had only to handle cotton and wool fabrics, one retailer commented. Then it was cotton, wool and rayon. We thought then that our work of keeping our customers informed on the various advantages and disadvantages of rugs made with these three fibers was getting a little complicated. We didn't know how lucky we were. This year, to do our job well, we shall have to educate ourselves and our customers on not only cotton, wool and rayon, but nylon, acetate, Acrilan and Verel. By next year, there may be several more added to the list. We shall all have to study harder to know what we are talking about.

The extraordinary proliferation of carpet fibers, along with the increased variety of colors and textures these new fibers permit, was brought home by D. H. Colville, vice president for sales of Roxbury Carpet Co. He pointed out that in 1951 his company showed only 12 lines which were all made of wool. In the January market this year, Roxbury showed over 50 different fabrics made with solution-dyed acetate, Acrilan, nylon and rayon as well as wool.

What kind of a market is it that the producers of nylon and Acrilan are competing so vigorously with rayon to win—if not entirely then at least as much of it as they can carve out for themselves in a world where inter-fiber competition is getting more rugged each year? According to the Carpet Institute, it is a market that yearly consumes about 240 million pounds of fiber. Last year, the Institute estimates that wool accounted for about 130 million pounds; rayon 80 million; nylon 20 million and cotton 15 million.

Wools used in carpets must all be imported since domestic wool is too soft and fine for carpet use. And the wool for carpets comes from such faraway and sometimes politically unstable places as Syria, Iraq, India and Argentina. There is no likelihood that carpet wools will grow more plentiful. There is every likelihood that they will grow scarcer and more expensive. Hence, there exists for man-made fibers, at the rate of current consumption, a potential market of 130 million pounds a year in the carpet industry. And if the man-made fibers, by bringing better carpets at lower prices, are able to widen the consumption of floor coverings—now admittedly low—there exists for these fibers a much bigger market than so far has been developed.

Drycleanable Elastic Webbing

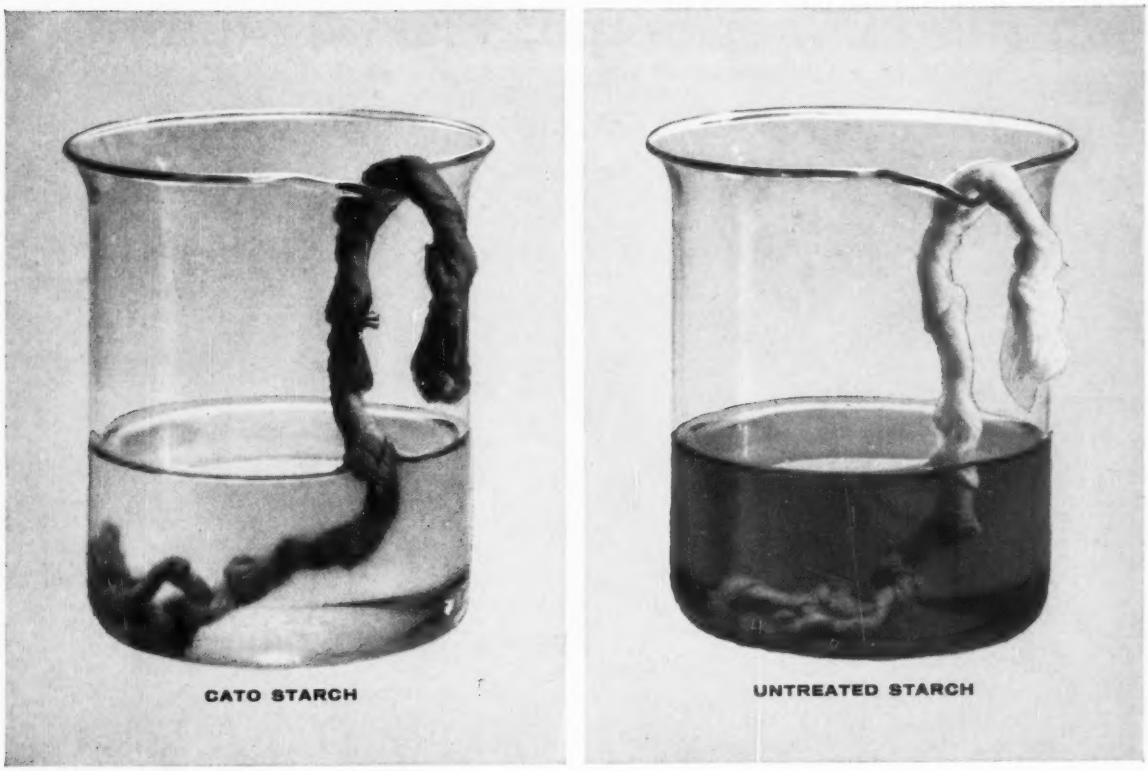
United Elastic Corp. has announced a "truly drycleanable elastic webbing." The new product is the result of 20 years of research by Easthampton Rubber Thread Co. Cooperating throughout this period were Du Pont's rubber chemists, who finally produced a new type of neoprene rubber suitable for the thread in the new webbings.

At a press meeting in New York City, Albert E. Johnson, director of trade relations for the National Institute of Drycleaning, stated that use of the new solvent-resistant webbing by garment manufacturers will remove a source of difficulty drycleaners have had for years with waistband webbings that become non-elastic and ill-fitting after drycleaning.

W. F. Kelsey, vice president of Easthampton Rubber Thread, said that after many years an elastic thread has been developed which, when woven into properly designed webs and attached to a garment, will allow that garment to be drycleaned many times without excess deterioration. Du Pont's Elastomer Chemicals Department stated that its synthetic rubber, neoprene, which is used in the new elastic thread, has a chlorine molecule which is responsible for the neoprene's resistance to petroleum solvents, and to attack by sunlight, oxygen and ozone, which are all enemies of natural rubber.

CATO®

CATIONIC STARCH FOR WARP SIZING



IODINE TEST proves greater starch affinity

A simple experiment. Take 100 ml. of solutions of Cato and corn starch at 0.005% concentration. To each add a 1 gram strand of any anionic yarn: cotton, wool, viscose, dacron, or others including blends. Boil for a few minutes. Cool and allow strands to drain as shown above. Now add drops of iodine to the strands and their respective solutions.

What happens?

The blue of the iodine test for starch proves the much greater affinity of Cato to anionic yarns—due to its patented cationic molecular structure. Showing how Cato promotes better adhesion, reduces shedding and improves weaving in warp sizing.

Interested? We'll be glad to supply trial quantities and have one of our textile specialists demonstrate in your plant.

National

STARCH PRODUCTS INC.

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1957 U.S. production figures

Man-made fiber output at new high

29% gain in non-cellulosics

OUTPUT of man-made fibers in the United States last year reached a new high of 1,764,600,000 pounds, according to the *Textile Organon*, statistical bulletin of the Textile Economics Bureau, Inc. The 1957 figure was 7½% higher than 1956, and 3% above the earlier record of 1,715,800,000 pounds turned out in 1955.

The year's production of rayon and acetate was 1,139,400,000 pounds, a decline of 1% from the 1956 output of 1,147,900,000 pounds. The *Organon* notes that the small decline from 1956 resulted from lower production of rayon yarn and acetate staple and tow, but increased output of acetate filament yarn and rayon staple and tow. The total 1957 shipments of rayon and acetate by U. S. producers was 1,116,500,000 pounds. This figure is 22,900,000 pounds less than production. Producers' stocks thus increased by this amount over the 12 month period.

Preliminary data complied by the *Organon* indicate that world production of rayon and acetate in 1957 reached a new record level of 5,400,000,000 pounds, an increase of 3% over 1956 which was the former peak year. The 1957 output of cellulosic filament yarn apparently equaled the 1956 level for the United Kingdom, but increases are shown for France, West Germany, Italy and Japan, four of the world's major filament yarn producers. For cellulosic staple + tow, production increases took place in France, West Germany, and the United Kingdom, but small declines from 1956 are believed to have occurred in Italy and Japan.

Summarizing the world rayon and acetate picture, the production of filament yarn is placed at 2,290,000,000 pounds in 1957, up 2½% over 1956 and approximately equal to the 1955 high. For staple and tow, a new world record output of 3,110,000,000 pounds is given, an increase of 3½% above the previous record year 1956. Compared with 1956, the United States share of world rayon and acetate filament yarn output declined from 33.6% to 31.2%, while for staple and tow the share in 1957 was 13.7% compared with 13.2% a year earlier.

The *Organon* tabulation of domestic rayon and acetate output by product shows that high tenacity rayon yarn production declined from 370,500,000 pounds in 1956 to 340,800,000 pounds last year or by

(Continued on Page 69)

U. S. Man-Made Fiber Production*

(in millions of pounds)

	1955	1956	1957
RAYON			
Regular tenacity filament yarn	202.3	186.3	165.6
high tenacity filament yarn	432.7	370.5	340.8
staple fiber and tow	337.8	341.0	371.2
ACETATE			
Filament yarn	230.1	192.8	207.9
Staple fiber and tow	57.8	57.3	53.9
NON-CELLULOSIC**			
Filament yarn	274.0	272.6	335.0
Staple fiber and tow	105.3	127.3	180.6
TEXTILE GLASS FIBERS	75.8	96.9	109.6
TOTAL MAN-MADE FIBERS AND YARNS	1,715.8	1,644.7	1,764.6

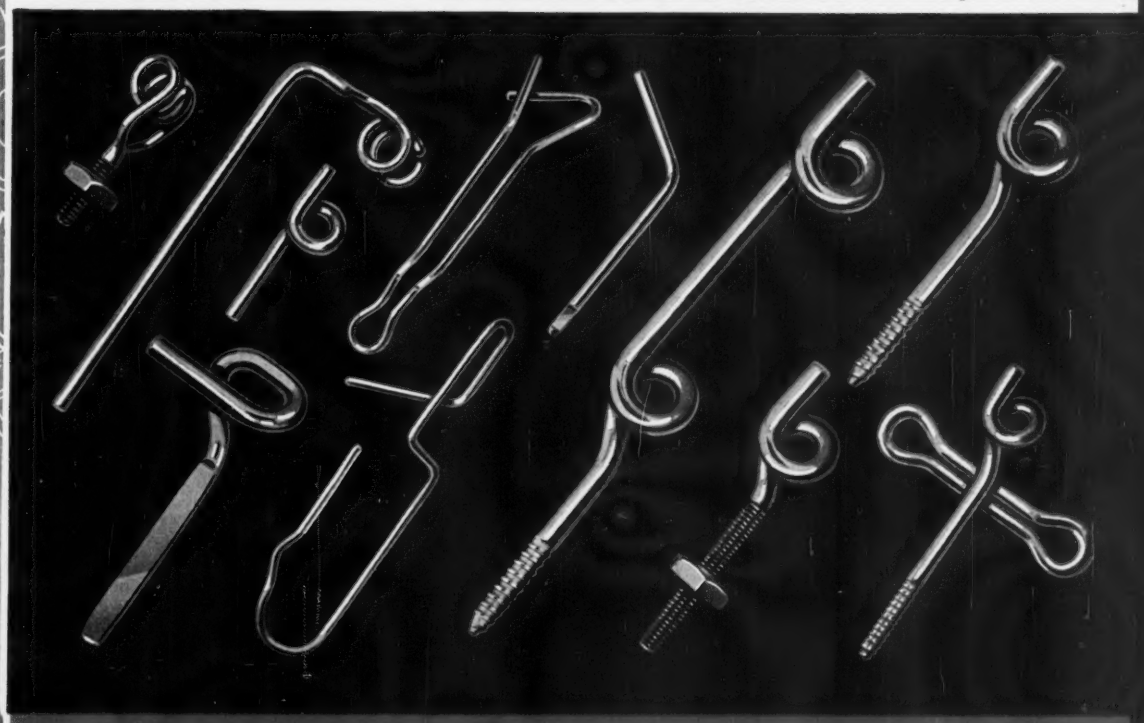
* Data in this tabulation is derived from the February, 1958 issue of the "Textile Organon", bulletin of the Textile Economics Bureau, Inc.

** This classification is sometimes referred to as the "newer" synthetics or the "true synthetics" to distinguish them from rayon and acetate which are made from cellulose. The classification includes nylon (polyamide) including caprolactam nylon; the acrylics (such as Orlon, Acrilan and Dynel); the polyesters (Dacron); polyethylene; protein fiber (Vicara); saran (polyvinylidene chloride) and such new fibers as Verel, Darlan, Creslan and Zefran as well as others.

The *Organon* points out that the decline of 8,500,000 pounds in rayon and acetate production was more than offset by an increase of 115,300,000 pounds or 29% in non-cellulosic fiber output, and an increase of 13,100,000 pounds or 13½% in output of textile glass fiber. Total production of textile glass fiber was 109,600,000 pounds.

Non-cellulosic filament yarn and monofilament production in 1957 was 335,000,000 pounds, 22½% above 1956—a new annual record. Output of non-cellulosic staple and tow during 1957 was 180,600,000 pounds or 42% above 1956—also a new high.

MACHINERY and EQUIPMENT SECTION



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Mitchell-Bissell **CHROMIUM PLATED**

THERE'S A DIFFERENCE! The chromium plating on Mitchell-Bissell Thread Guides is denser and longer wearing than on other wire guides on the market. A thick application of hard chromium, polished to a mirror finish, makes these the highest grade wire guides obtainable. Can be made in any shape or any size desired.

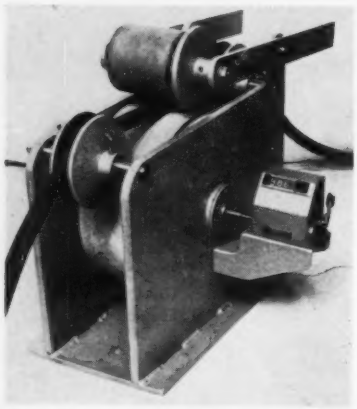
Guides are shown approximately actual size

MITCHELL-BISSELL CO. • TRENTON, NEW JERSEY

Southern Representative: R. E. L. Holt, Jr. & Associates, Jefferson Bldg., Greensboro, N. C.

MITCHELL-BISSELL CO.

New MACHINERY
New EQUIPMENT

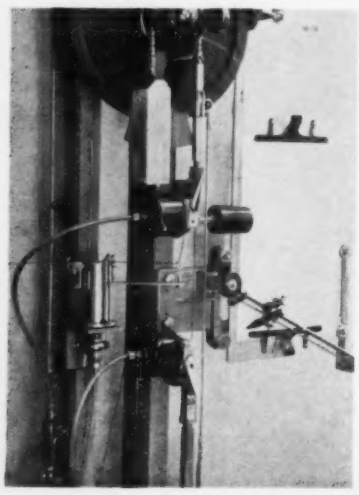


Rope Measuring Machine

Trumeter Co. is marketing a measuring machine for use on ropes and cables up to three inches in diameter. The machine is made of heavy-section welded steel frame, with a measuring roller of one yard circumference and an adjustable pressure roller, both of which run in ball bearings. An automatic brake is said to prevent overspin. The unit can record in feet, yards, meters, etc., with a printer counter if so desired to furnish a printed record. *For further information write the editors.*

Tire Cord Clamps

Scott Testers, Inc., reports that its Spruance semi-automatic tire cord clamps, for assuring consistent test values, are now available on the company's vertical X-3 tensile tester. Originally provided only for the Scott IP-4 horizontal tester, the clamps mechanize critical test procedure steps, and are said to result in adjustment to compensate for varying cord diameters, pretensioning, test loading cycle, and clearance of broken ends, all automatically. *For further information write the editors.*



Automatic Dockboard

A new Hi-Lo automatic dockboard, for installation on existing truck docks, has been developed by Kelly Co., Inc. The model, No. 1200, only needs to be bolted to the top of the dock. No electrical, air or hydraulic power is required for the unit which operates on a counterweight system mounted on the face of the dock between two Kelco bumpers. No dock attendant is reported needed, as the entire adjustable ramp section tilts automatically to compensate for uneven truck beds. Standard models are six feet wide, and eight to ten feet long with roll-over capacity of 12,000 pounds. *For further information write the editors.*

New Tenter Housing

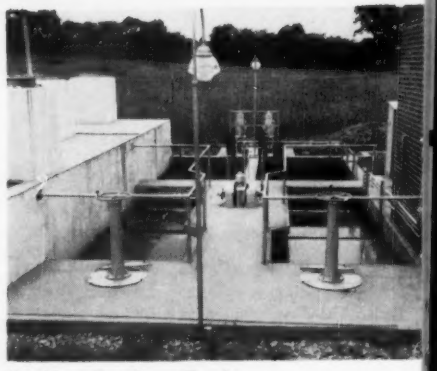
James Hunter Machine Co. has introduced its "Jet Stream" tenter housing, developed as a result of studies made of existing nozzle drying systems. The new housing is said to provide a maximum evaporative capacity, using either steam or a gas-fired heat source. Heavy duty fans are mounted overhead with heaters and screens in a penthouse. Plenum chambers located above and below the tenter frame carefully split the air. The tenter housing's features permit an even application of heat to be maintained across the width of the fabric; migration of resins and dyestuffs is eliminated; excessive drying at cloth edges is avoided, according to the manufacturer. *For further information write the editor.*

Powered Steel Strapping

Stanley Steel Strapping, a division of The Stanley Works, have issued a new brochure, "Power Strapplications." The illustrated brochure describes the firm's steel strapping system and applications and its powered steel strapping machines and tools. *For free copies write the editors.*

Install Hussong Machines

Caledonian Dye Works, Philadelphia, Pa., has installed two additional fully-automatic, stainless steel Hussong machines for dyeing tapes, it was announced by William M. Fitch, president.

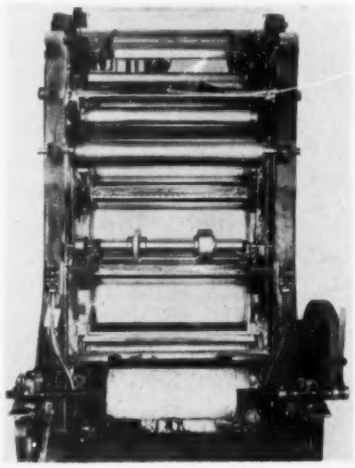


Uniflow Settling Tank

Link-Belt Co., in its Folder 2648, describes in detail the firm's Uniflow settling tank for removing solids from water, sewage and industrial wastes. The tank combines a rapid sloping bottom with multiple effluent weirs, with the design said to increase efficiency of solids removal. *For free copies write the editors.*

Portable Roll Grinder

A portable traverse roll grinder which can be used to redress rolls without removing them from their regular point-of-use has been developed by B. S. Roy & Son Co. The



grinder can be used to redress rubber, felt, rigid plastics, thermoset plastics, nonferrous alloy, cast iron and steel rolls. Regrinding is reported to restore original roundness, straightness, contour and capacity. *For further information write the editors.*

Unifil Loom Winders

Universal Winding Co. has received its first substantial repeat orders for the firm's Unifil loom winders. Amerotron Corp. has ordered 3,000, and 130 were ordered by Dover Mill Co. Universal reported over 3,700 Unifils were sold by the end of 1957. Some 3,000 are operating on looms in 22 textile mills weaving a variety of fabrics with cotton, filament and spun synthetic fillings, ranging from very coarse to fine counts.

Saco-Lowellizing

WHAT IT MEANS....

(A) To utilize floor space so as to improve the flow of production.

(B) To co-ordinate the successive steps in processing.

(C) To reduce waste, spoilage, and unnecessary handling of stock.

(D) To realize the greatest economies in operating and maintenance costs.

WHAT IT CAN DO FOR YOUR MILL....

Specifically, you can expect *increased production* per man hour, *higher yield* from raw stock and *lower production* costs. This program creates the important improvement in quality and savings in operating expense so essential to maintaining profitable operations under today's highly competitive conditions.

Here are the results from a recent case history:

Type of Goods — 39" 80 x 80 4.00-yd. top quality print cloth

No. of Looms — 824

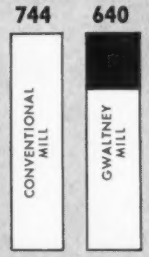
Production per 8-hour Shift — 6120 lbs.

Count of Warp — 31's

Filling — 41's

NO. OF SPINDLES	CONVENTIONAL MILL	SACO-LOWELL GWALTNEY MILL
	40,032	38,592

Man Hours per 8-hour Shift
(Opening and picking through Cloth Room)

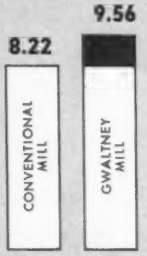


Reduction in Man-hours in Gwaltney Mill
13.98%

Spinning Spindles per Operative

Increase in Gwaltney Mill
53.06%

Pounds per Man-hour
(Opening and picking through Cloth Room)



Increase in Gwaltney Mill
16.3%

IT'S TIME FOR YOUR MILL TO START A
SACO-LOWELLIZING PROGRAM
CONTACT YOUR NEAREST SACO-LOWELL OFFICE

SACO-LOWELL SHOPS

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Shops at BIDDEFORD & SACO, MAINE; SANFORD, N.C.; EASLEY, S.C. *Sales Offices:* CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA

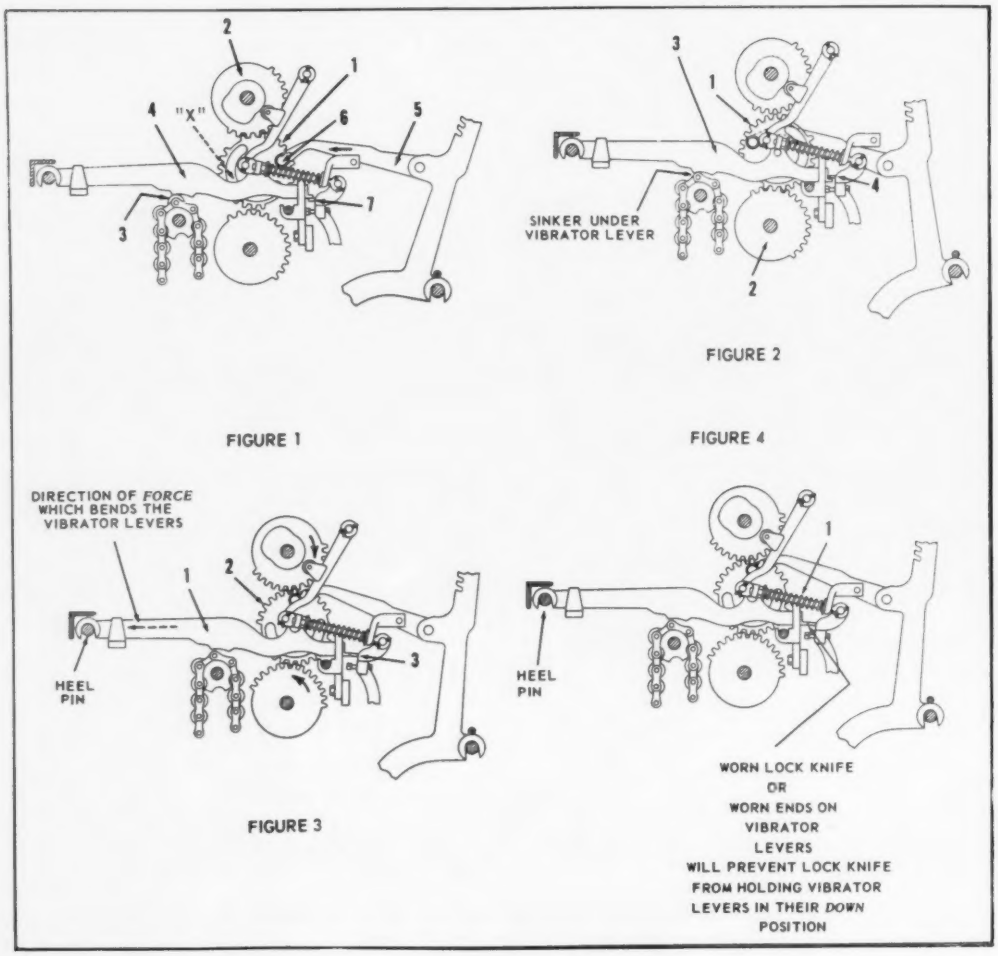
how to avoid bent vibrator levers

OCCASIONAL reports that mills are being troubled by bent vibrator levers caused Crompton & Knowles engineers to make detailed examination of the design and metallurgy of the parts involved. These tests failed to reveal any deficiencies which would cause the vibrators to bend under normal operating conditions. Consequently, further studies were made in an attempt to isolate all contributing factors.

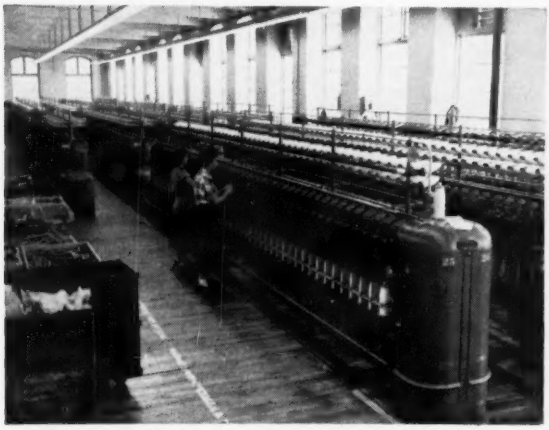
Malfunction of the lock knife due to poor settings or adjustment of this mechanism, is undoubtedly the major cause of the trouble, C&K engineers have concluded. The following description and diagrams clearly show some of the conditions under which vibrator levers are subjected to sufficiently abnormal loads to cause them to bend.

Figure 1 shows a schematic diagram of the head motion as viewed from the front of the loom. Illustrated is the normal condition which causes the harnesses to be raised. The *Vibrator Gear* (1) is raised into mesh with the *Top Cylinder Gear* (2) because of presence of the *Riser* (3) under the "run" of the *Vibrator Lever* (4). Note that the vibrator gear is *completely out of mesh* with the bottom cylinder gear. The rotation of the *Gear* (1) will cause the *Vibrator Connector* (5) to move in an arc in the direction indicated by the arrow until the *Pin* (6)

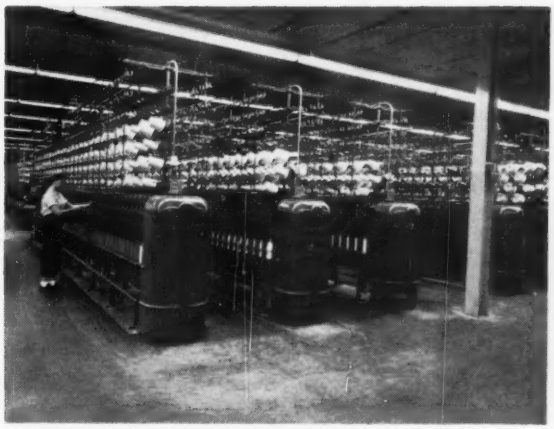
(Continued on Page 52)



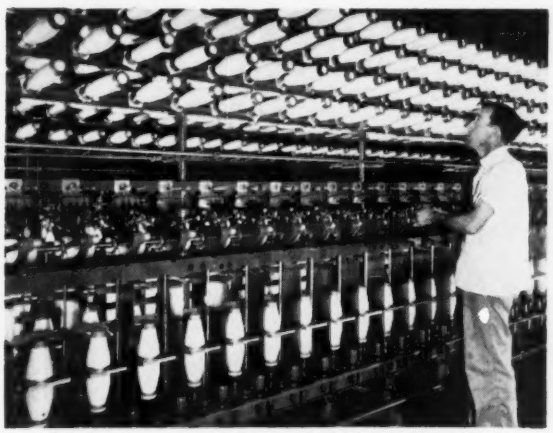
Leesona® Model 10 puts a wonderful twist on any yarn



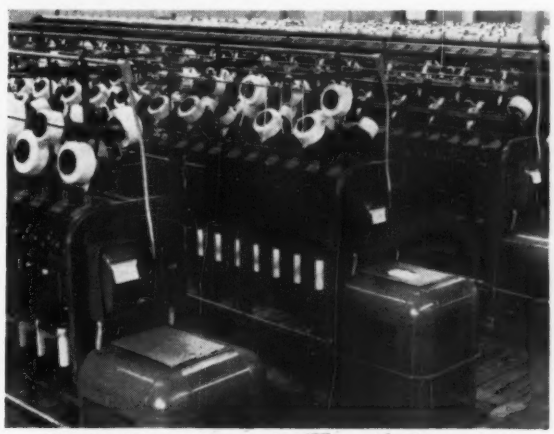
Twisting wool and worsted from spinning bobbins onto taper-top, take-up packages, as supply for winding machines.



Worsted, synthetic and metallic yarns from cones are plied together, twisted and taken up on large packages.



Twisting glass yarn from pirns to double-taper packages which will be used for filling and warping without re-winding.



Twisting Dacron* directly from zero-twist cheeses onto straight wind bobbins for further processing on high speed UNIRAIL® Uptwisters.

The world's best yarns — and all the others too — natural or synthetic — spun or filament can be plied and twisted best on a Leesona Model 10 Ring Twister.

With it you twist single end yarn or combine two to 16 ends, with a twist range of ½ to 55 turns. Automatic stop motion for each end in the ply permits tying knots in singles.

Here's the most versatile of twisting machines ready for any kind of package delivery — cones, cheeses, cakes, pirns, spools, bobbins or tubes. Produces straight wind, taper-top or double tapered take-up packages (filling or warp wind).

For more facts and figures write for Leesona Model 10 Ring Twister Bulletin 10-A.

*Dacron is a DuPont registered trademark.

23.7.6

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Bent Vibrator Levers

(Continued from Page 50)

reaches a point designated as "X". Observe that the *Lock Knife* (7) is in its "in" position and that it is *under* the point of the vibrator lever.

If the next indication from the harness or box chain is a sinker—as illustrated by Figure 2—the following conditions will exist.

The *Vibrator Gear* (1) is lowered into mesh with the *Bottom Cylinder Gear* (2) because of the presence of a sinker under the "run" of the *Vibrator Lever* (3). Note that the *Gear* (1) is completely out of mesh with the upper cylinder gear. The *Lock Knife* (4) is in its "in" position and *over* the tip of the vibrator lever.

Normally, when two gears are engaged and one gear is imparting motion to the other gear (in this case, the cylinder gear is driving the vibrator gear) there is a force trying to separate the two gears. Because the cylinder gear is fixed in solid bearings, the floating vibrator gear will have a tendency to rise out of mesh with this cylinder gear. However, if the lock knife is correctly in position, as illustrated, the vibrator gear cannot rise out of mesh with the bottom cylinder gear.

It is generally true that a heavy harness load will create large forces that try to separate the gears. The lock knife will function properly with light harness loads even if the ends of the vibrators or the knives are slightly worn. But malfunctions will occur if the harness load becomes increased because of the increased forces tending to separate the gears.

Condition of Abnormal Operation

Figure 3 illustrates a most serious malfunction caused by failure of the lock knife to hold the vibrator gear in mesh with the bottom cylinder gear. This condition is responsible for bent vibrator levers.

Although a sinker is under the "run" of the *Vibrator Lever* (1) something has prevented the *Vibrator Gear* (2) from becoming fully meshed with the bottom cylinder gear. This condition is caused by a failure of the *Lock Knife* (3) to hold the end of the vibrator lever "down". When this malfunction occurs, the *Gear* (2) will be half in mesh with the top cylinder gear and half in mesh with the bottom cylinder gear in the manner illustrated.

As indicated by the arrows on cylinder gears, the bottom cylinder gear will try to rotate the vibrator gear in a clockwise direction and the top cylinder will try to rotate the vibrator gear in a counter-clockwise direction. The resulting forces move the gear and vibrator lever in the only direction they can go—backward against the heel pin, as indicated by the broken arrow.

When this malfunction occurs, two things can happen: (1) the vibrator lever will bend; (2) the vibrator gear teeth will break.

Lock Knife Malfunctions

There are several circumstances which could cause the lock knife to be in an improper position, and therefore, cause damage to vibrator levers or vibrator gears.

1. Improper timing of the lock knife so that it does not get into position to hold th vibrator lever "down" before the bottom cylinder gear rotates the vibrator gear.

2. Broken or weak spring on the lock knife assembly. This is the *Spring* (1) on Figure 4. Sometimes a weak spring will give a slow movement to the lock knife even though the timing is correct.

3. Worn lock knife or worn tips on the vibrator lever. Excessive wear of any of these parts will cause the vibrator levers to slip up over the lock knife in the manner illustrated by Figure 4. The condition of the parts should be inspected periodically.

Safety Device Malfunction

Most head motion looms are equipped with a safety device to prevent damage to the head motion parts should the lock knife fail to function properly. On the Crompton & Knowles W-2, W-3, or W-3A Looms, this safety feature is located in the gear on the crankshaft which transmits the drive to the upright shaft. It consists of a slip key instead of a conventional straight key.

Unfortunately, this key is often tightened to the extent that slippage will not occur when there is an unusually abnormal load. This practice eliminates any chance of protection that the slip key could offer if the lock knife failed to function and an abnormal load was placed on the cylinder gears.

Vibrator Replacement Procedure

As a means of eliminating additional malfunction of the vibrator lever and vibrator gear assembly, avoid placing a new vibrator lever in a head motion with old vibrator levers—especially vibrator levers badly worn at the heel pin slot. Equip one or two looms completely with new vibrator levers, and use the old levers as replacements in head motions using old levers. Avoid the use of badly worn vibrator levers. Check the alignment of the levers by use of a vibrator gauge.

Hunter Buys Mudrick

Hunter Fiber Machine Co., newly-formed and wholly-owned subsidiary of James Hunter Machine Co., manufacturer of garnett and other textile machinery, has purchased the equipment and manufacturing rights of the Mudrick Machine Works in Los Angeles, Calif. Earl G. Paules, Hunter vice president, and Arthur R. Campman will assume executive management of the new corporation, with Mrs. Carmen Wagner and Joseph Mudrick continuing in the positions they formerly held in the Mudrick organization.

Mudrick Machine Works, an authorized reclothing station for Hunter garnett cylinders since its establishment in 1924, also designed and produced a line of pickers, condensers and other fiber preparatory machinery used in the opening and cleaning of cotton, jute, sisal and other natural and man-made fibers.

Car-Stopping Nylon Net

A lightweight, heavy duty nylon webbing cargo net manufactured by Paulsen-Webber Cordage Corp. may soon find itself being used to stop cars seeking to evade the law. The company reports the net, still to be tested for such a purpose, could be stretched across a highway and easily stop a speeding auto. A 10-foot square net of webbing 1¾-inches wide has a 6,000-pound breaking strength. A similar net but with a webbing of only 1¼-inches has a breaking strength of 4,500 pounds and weighs only 19 pounds, or one-fourth that of a comparable manila rope net.

Paulsen-Webber reports that the nylon nets have been especially good for loading crude rubber on ships, because of the chemical reaction started when such rubber gets wet. Such reactions usually quickly ruin manila rope nets after one to three loadings but nylon nets have survived 10 such loadings and are still being used.

We shudder when they sometimes say:

"It's a Great 'Gimmick'!"

We agree that *Lanolized* is great — a truly great fabric finish — but "gimmick" it's *not* — No, Sir! . . .

Some people think that anything possessing merchandising advantage is a "gimmick". Really, nothing could be further from the truth. A "gimmick" is a means whereby questionable advantage of a passing nature is gained from the unsuspecting — a means of taking unfair advantage of the gullible or unthinking. Forbid that *Lanolized* should ever enter into such a category!

Lanolized is an *honest* product — an *honorable* fabric finish that provides *sincere* merchandising advantages! It's Nature's very own fabric finish: lanolin plus some very important added ingredients to make lanolin-in-fabric do the job it's supposed to do — give a wonderfully soft, smooth, skin-compatible "hand" to most fabrics. "Desirable" is the word.

Because the *Lanolized* finish *is* good — and we want it to *be* good, always — it's available only through quality-controlled, licensed sources. Store buyers should ask their resources about *Lanolized* finished fabrics . . . for women, children and infants' wear.

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NEW EQUIPMENT

(Continued from Page 48)

Improved Tricot Warper

Kidde Manufacturing Co., Inc., has announced its Kidde-Sipp tricot warper for handling all sizes of beams with 14 or 21-inch diameter flanges and with lengths 16, 21 and 42-inches or greater. The same machine, Kidde reports, will handle various sizes by changing the compression roll. Constant yarn speed is automatically controlled while adjustable electric brakes for the beam drive and for the measuring and compression rolls permit quick stops which will not scuff or damage the yarn. Operator effort on beam doffing is limited to turning a handwheel to retract the beam gudgeon and handling a doffing control level. *For further information write the editors.*

Vacuum Metallizing Data

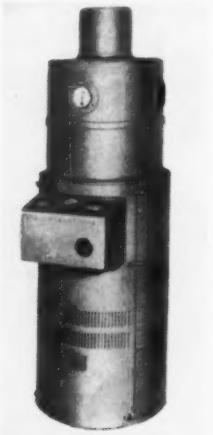
A revised and up-to-date edition of "Vacuum Metallizing" has been published by the Vacuum Equipment Division of F. J. Stokes Corp. Vacuum metallizing, or vacuum plating is described as a clean, low-cost production technique for metal-finishing a wide variety of products. Without buffing or polishing, it is said to give a bright, lustrous metallic finish on any base material, including metal, plastic, glass, paper or textiles. *For free copies write the editors.*

14 Weaving Machines Installed

Dodge Wire Corp., Atlanta, Ga., has purchased 14 Warner & Swasey high-speed weaving machines for the manufacture of aluminum insect screening for windows and doors. Dodge Wire technicians worked with Warner & Swasey designers in developing the machines which will be installed at the wire company's plant at Covington. The machines will weave insect screening at any width up to 50 inches and at four to six times the speed of conventional equipment.

Light-Fading Tester

G. F. Bush Associates is marketing its GFB light-fading tester, Xenotest PL393 model. The unit is



a research, testing and production control device for accelerating sunlight effects on all materials, coated and otherwise. Test specimens are exposed to filtered light from a centrally-located xenon lamp, with light intensity at the sample approximately 15,000-ft. candles. The unit's operation includes safety controls. *For further information write the editors.*

Textile Moisture Control

Trumeter Co. has been appointed sole agent in the U. S. for Drytester G.M.B.H., of Lungern, Switzerland, manufacturers of the U.S. patented Humidocontrol-Drytester equipment for moisture control in textiles. The equipment, which operates without control settings or special calibrations, is said to insure uniform drying of the material by means of continuous moisture control over the whole width. These measuring instruments will be on display and demonstrated by Trumeter at the Southern Textiles Exhibition in Greenville, S. C., in October. *For further information write the editors.*

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Megargel of Scranton Lace

(Continued from Page 32)

two Scranton men brought along a new merchandising idea. Spiegel's was a big volume buyer for a medium grade lace curtain at 50 cents a piece. This time Megargel and the salesman offered Charlie Folger, the Spiegel buyer something new.

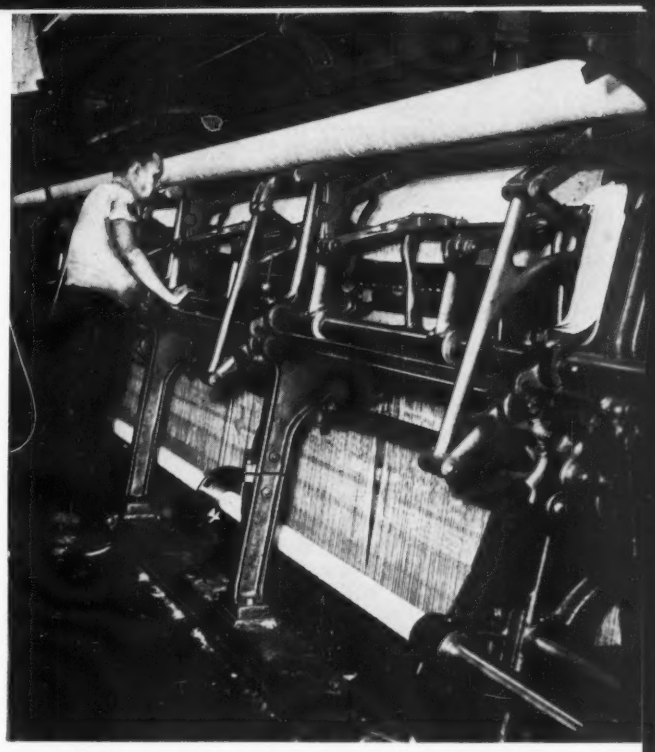
They suggested that Spiegel buy curtains at a price that would enable the mail order house to sell them six in a bundle. Folger told them that he would think it over and let them know the next day. When they returned for his decision, Folger opened a drawer in his desk and took out an order already filled out. He handed it not to the salesman but to the salesman's assistant, Megargel. The order was for 100,000 curtains at 50 cents each.

"Actually, the order was credited to the salesman, of course," Megargel says today, recalling the incident. "As far as I can figure it out, Charlie Folger, a kind hearted fellow who believed in encouraging the young and inexperienced, handed it to me just for that reason." Whatever Folger's motives, the effect was one of tremendous encouragement to young Harold Megargel to push forward as a salesman. And in his time he has done so. There are few men so well known in the home furnishings field or so well liked today as Harold Megargel at the age of 59.

Although he liked selling and worked at it whenever he could, Megargel found himself back in the manufacturing end of the business within a few years. After the death of Paul Belin in 1931 Robertson became president and Megargel became vice president in charge of manufacturing at the age of 32.

At this point in his career, Harold Megargel could have allowed himself to become absorbed in manufacturing techniques and manufacturing problems and thus become another millman, fully master of his job as long as he was within hearing of the clack of looms and the hum of spindles. The textile industry has many such men, and they are the salt of the industry, the men who keep the wheels turning and the plant in tiptop shape as long as someone else keeps the orders coming in.

But Harold Megargel refused to become just another production man tied closely to the big plant at Scranton, Pa. Although he was vice president in charge of manufacturing, he managed to find a lot of time to spend as a cheerful, indefatigable sales missionary for Scranton Lace's products. He called frequently on Scranton's customers and soon was well-known to curtain buyers in stores throughout the country, and especially in Chicago, Cleveland, Detroit and other middle-western cities where lace curtains have always been in particularly strong demand.



NOTTINGHAM LACE LOOM—Made in England, these big machines are specifically designed for lace making, and are not adaptable for other kinds of cloth.

He asked questions and he uncovered a great deal of information about what buyers wanted in the way of new curtains. Then he took his knowledge back to the mill and made the kind of fabrics the stores said their customers wanted.

Business was good for many years. Scranton under the leadership of Robertson and Megargel bought new machines and modernized its old equipment. In recent years, however, the great revolution in home furnishing tastes that has swept America had its devastating

FINISHING IS IMPORTANT—Nottingham lace at Scranton is carefully finished on modern equipment to bring the cloth up to its optimum appearance qualities and to impart shrink-resistance and easy washability.

effect on demand for lace curtains. A younger generation of homemakers forgot or never even learned that lace curtains were a proud symbol of respectability. The picture windows of today's millions of ranch homes and Cape Cods are draped in a variety of materials, but Nottingham lace is seldom seen. As the old timers are fond of saying about so many things—the five cent cigar, the dollar table d'hote and the 1929 auto—"You don't hardly see them no more."

In recent years Scranton has sold more lace table cloths than curtains. Harold Megargel is frank to admit that he wishes some new products could be developed that could be profitably made on the highly specialized and rigidly limited Nottingham Lace machines. A good start has been made, under his leadership, in bringing out "silhouette drapes" an updated variety of the lace curtain that fits in well with modern tastes in interior decoration. The new Nottingham casement cloths generally have heavier texture than old-fashioned lace curtains. These drapes are, nevertheless, largely translucent, but the intricate patterns, many in Scandavian, Italian and American contemporary themes, create a subtle interplay of light and shadow. Thus the silhouettes serve to use window light as an element of interior decoration, providing a variety of changing effects to lend interest to room interiors.

Megargel, since he became president of Scranton after Robertson's retirement in 1955, has pushed further along his company's activity as a manufacturer of plastics materials. Scranton, looking to escape from complete dependence on the weakening curtain business, entered plastics strongly in 1946. Its first product was vinyl shower curtains; it has expanded considerably since then until currently it is one of the major producers of better grade vinyl materials for this use. Last year, the company created its new Lamiplex Division to produce laminates of fabric and vinyl sheeting for a variety of uses.

Further diversification and further pioneering in new and more fashionable uses for Nottingham fabrics are the inescapable order of the day at Scranton Lace, Harold Megargel feels. Cheerful, lively, and unpretentiously friendly to everyone, he has great plans cooking in his head.

By some kind of a miraculous (from Scranton's point of view) reversal in home furnishing fashions, Nottingham lace made on Nottingham machines might again become the rage of American homemakers, and once again serve as the sought-after symbol of respectability. But Harold Megargel does not believe in waiting for miracles. It is his aim to put fine old Scranton Lace Co. in a position where it will not be dependent entirely on one product, and where a variety of manufacturing activities will give reasonable assurance of profitable operation. His hundreds of friends in the industry are betting that he will do it, too.

Dynel Filter Fabrics

Landon, Inc., a supplier of equipment for both family and commercial swimming pools, reports increased efficiency and reduced water purifying costs through the use of Dynel filter fabrics. The fabrics are employed in Landon's vacuum-type "Lanco Skim-Filter" to retain a filter medium of diatomaceous earth or volcanic earth. The closely woven cloth retains the filter medium and impurities while permitting a free flow of clean water to return to the pool. Moisture is said to have no weakening effect on the fiber. Landon says excellent results are being obtained from fabrics even after 18 months of continuous use. *For further information write the editors.*

Technician holds open-end sleeve woven of 100% Dynel, which, at right, is seen clamped around plates of filter.

Acrilan Blanket Fiber

Acrilan Mark III—Blanket Fiber, specifically designed to produce a greater whiteness and loft in blankets, will be introduced shortly by The Chemstrand Corp., producer of regular Acrilan acrylic fiber. Blankets made of the new product will have the usual advantages of 100% Acrilan acrylic fiber, according to the company, including machine washability and dryability, shrink-resistance, moth and mildew resistance, non-allergenic comfort and warmth without weight. Chemstrand reports the fiber will be in limited supply for some time. *For further information write the editors.*

Coloray Drapery Fabrics

Courtaulds (Alabama) Inc. reports the increasing demand for color-fastness in draperies has been reflected in a growing use of Coloray, the firm's solution-dyed rayon staple. Drapery fabrics made of Coloray for Spring 1958 marketing include boucles, slubbed satins, novelty weaves and failles. Defined patterns, in woven stripes and plaids, also will appear for the first time. In many instances, the fabrics contain one or more other fibers, natural or man-made, for varying texture effects and added performance features. *For further information write the editors.*

By B. Mori

Textile outlook brighter; tighter controls sought

OSAKA—Strong medicine of sharp production curtailment has already had some salutory effects; and it appears that the textile industry will be out of its inventory depression by April-May. This period of difficulty has left behind it some permanent effects, in the form of councils and committees which will tend to promote joint planning and joint control in the several segments of the textile industry hereafter.

Rayon Export Prices Controlled—Going one step further, there is now a permanent purchasing organization for rayon fabrics, the function of which is to buy "key cloths" from weavers and sell them at fixed prices for export. There is some pressure in the industry for similar bodies for other textiles also. One important purpose for such organizations would be to supplement individual companies' ever-precarious financing with Government-backed financing to absorb surplus inventories and to sell these goods in a more orderly fashion.

Tighter Controls of Cotton Goods Sought—It is likely that the Government will want to couple such forms of assistance with tighter production controls. At the same time as cotton spinners were asking Government financial aid to avoid distress inventory liquidation, the Ministry of International Trade & Industry was complaining of unreported production of yarn by smaller spinners in defiance of generally-agreed curtailment program.

The year's first estimates of textile exports come from MITI, pointing to a gain of about 5% over-all, compared with increase of 16% in 1957 over 1956. The MITI Textile Bureau is less optimistic about cotton goods sales than it is about other textile products—although advance sales of cottons now are in a stronger statistical position than most others.

Textiles Lead in Exports—Textiles as a group still held first place in the export hierarchy during 1957, with an aggregate value of $1,015,000,000, about 35% of Japan's total sales abroad.

Considerable attention is being given in the Government to achievement of an export goal of $3,150,000,000—the level at which planners believe stability can be achieved in the nation's foreign currency accounts. In 1957 export validations were $2,861,000,000, a gain of 16%. However, rate of increase from 1955 to 1956 was 23%. The levelling-off tendency makes it look as though some extraordinary trade-promotion efforts will be needed to reach the goal.

U. S. Purchases Higher—The United States bought $617,000,000 worth of goods from Japan in 1957, a gain of 12%, compared with a gain of 30% in previous year.

Responding at last to urging of Japanese and foreign businessmen alike, the Government had started to work on simplification of export licensing and foreign exchange control regulations as one means of encouraging export business.

Export Quotas on Scarves Fixed—Export quota on silk and silk-rayon mixed scarfs for U. S. and Canada will be 2,350,000 dozen for twelve months starting May 1, compared with 2,100,000 dozen in the 1957-58 period. Quota for handkerchiefs of same materials will be unchanged at 2,800,000 dozens . . . At this writing, an export quota of 11,000,000 square yards of silk and silk-rayon mixed 10-momme habutae is expected to become effective about March 1 for twelve months. . . . . Both these silk quotas are designed principally to support prices which had fallen due to over-production for expanding export market.

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NEW FABRICS

NEW YARNS

Fur-Like Scatter Rugs

Aldon Rug Mills, Inc., has placed on the market scatter rugs made of blended Acrilan and Dynel acrylic fibers which provide a deep pile said to look and feel like fur. Trademarked "Elegance," the rugs are offered in nine oval sizes from 18 by 30-inches to 54 by 72-inches, and in four round sizes from 24 to 54-inches, in a choice of six light colors. Retail prices start at $4.95. The rugs are washable, color-fast, moth and mildew proof, fire-resistant, non-matting and non-allergenic, according to Union Carbide Chemicals Co., producer of Dynel. *For further information write the editors.*

New Fiberglas Showcase

Riverdale Drapery Fabrics has introduced a new showcase for Fiberglas fabrics and is offering it for the first time to retail outlets as part of the firm's Spring promotion. Sixty full-width and accordion-pleated Fiberglas samples will be arranged on the showcase by colors. The case, 52 inches high and 36 inches wide, can accommodate 100 fabric samples. It is equipped with a slot in which literature on the care, handling and sewing of Fiberglas, provided by Owens-Corning Fiberglas, can be placed. *For further information write the editors.*

Fiberglas Ready-Made Drapes

John Wolf Textiles, Inc., has entered the Fiberglas ready-made drapery market with five new patterns of "Crystal," a drapery weight Fiberglas fabric, to retail at about $10 per pair. The firm believes consumers will appreciate the work-saving advantages of Fiberglas draperies, including hand washability and the non-wrinkling and no-iron features. *For further information write the editors.*

Acetate-Nylon Knit Dresses

A new line of knit dresses, designed by Rosanna for Spring and Summer wear, is made of a new yarn combining Eastman's lofted acetate and nylon. Eastman Chemical Products, Inc., which markets the lofted acetate yarn, reports that combined lofted acetate and textured nylon yarn makes it practical for retailers to hang the dresses in stock because they will not sag or stretch and are crush and crease-resistant. The combined yarn has controlled elasticity which can be handled by standard knitting equipment. *For further information write the editors.*

New Ribbon Patterns

Edward M. Kahn Corp.—Emko Ribbon Co. is introducing two new ribbon patterns, both reported to be completely water-repellent and available in 13 colors. The "Nite 'N Day" pattern has a metallic, non-tarnish edge and comes in three widths, 1½, 2¾ and ⅝ of an inch. Kahn-Emko's second pattern, "Mardi Gras," is an acetate satin with an applique of Mylar and glitter and comes in a ⅝-inch width. *For further information write the editors.*

Coloray Knit Fabrics

Simcoe-Kranze has developed knit fabrics of Courtauld's Coloray solution-dyed rayon staple fiber and space-dyed filament rayon, in approximately 50/50 proportions. The new fabric is being presented to cutters for sampling. The fabric has the "Fas-Dri" finish which, according to the manufacturer, makes possible for the first time rayon knit goods that more than meet wash and wear standards. *For further information write the editors.*

THE TEXTILE DISTRIBUTORS INSTITUTE, INC.

NEWS AND COMMENT

Amended Arbitration Clause

The forthcoming consolidation of the National Federation of Textiles, Inc., and the American Cotton Manufacturers Institute, Inc., which is expected to become effective on May 1, has made it necessary to amend the arbitration clause presently appearing in the recommended Finished Goods Contract & Finished Goods Receipt approved by the Textile Distributors Institute.

For textile distributors who are planning to order a new supply of contract and delivery receipt forms for use prior to May 1, the Textile Distributors Institute has made the following recommendations:

1. The arbitration clause in the Finished Goods Contract should be amended to read as follows: (new wording italicized BUT DO NOT SHOW THE ITALICS IN THE PRINTED CONTRACT)

> All controversies arising out of, or relating to this contract, or any modification thereof, shall be settled by arbitration in the City of New York under the Rules of the *Arbitration Bureau* of The National Federation of Textiles, Inc. *or upon dissolution of said Federation, under the Rules of the successor of said Bureau.* The parties consent to the jurisdiction of the Supreme Court of the State of New York for all purposes, including enforcement of the arbitration agreement and proceedings and entry of any judgement on any award; and further consent that any process or notice of motion or other application to the Court or a Judge thereof may be served outside the State of New York by registered mail or by personal service, provided a reasonable time for appearance is allowed.

2. The arbitration clause of the Finished Goods Receipt should be amended to read as follows:

> We herewith acknowledge receipt from you in good order of the above merchandise, and this act of acceptance constitutes our agreement to the terms and conditions of the standard contract approved by The Textile Distributors Institute, Inc., including but not limited to the provision stating that all controversies arising out of or relating to this contract, or any modification thereof, shall be settled by arbitration in the City of New York under the Rules of the *Arbitration Bureau* of The National Federation of Textiles, Inc., *or upon dissolution of said Federation, under the Rules of the successor of said Bureau.* The parties consent to the jurisdiction of the Supreme Court of the State of New York for all purposes, including enforcement of the arbitration agreement and proceedings and entry of any judgement on any award; and further consent that any process or notice of motion or other application to the Court or a judge thereof may be served outside the State of New York by registered mail or by personal service, provided a reasonable time for appearance is allowed.

If you do not plan to print a new supply of Finished Goods Contracts and Finished Goods Receipts until after the dissolution of the Federation has become effective and has been publicly announced, the Arbitration Clause in the contract might then be amended to show the name of the organization under whose auspices the arbitrations will be held, which we expect will be The American Cotton Manufacturers Institute, Inc., without making any reference to The National Federation of Textiles, Inc. We will advise you by bulletin at that time of the exact text of the clause to be used.

Until the new contract forms are put into use, it is recommended that an appropriate notation be placed on all contract and receipt forms which are issued after this date in order to provide for this change in the arbitration procedure. It is recommended that a rubber stamp be prepared containing the following clause, which can be stamped on your existing stock of contracts and receipts adjacent to the existing arbitration clause. This clause should read as follows:

> "Upon the dissolution of The National Federation of Textiles, Inc., such arbitration shall be held in accordance with the Arbitration Rules of the successor to the Arbitration Bureau of The National Federation of Textiles. Inc."

For your convenience, arrangements have been made through: Samuel H. Moss, Inc., 36 East 23rd Street, New York 10, N. Y., to supply members with rubber stamps showing the above clause.

Arrangements have also been made with: Old Colony Printing Company, Inc., 35 Maiden Lane, New York 7, N. Y. Contact: Mr. P. O. Zimmerman—WO. 2-0694 for the printing of Contract and Spot Delivery Receipt forms to meet your requirements.

With respect to the contracts which you may now have outstanding and which may become the subject of arbitration after the dissolution of The National Federation of Textiles, Inc. has become effective, it is recommended that you communicate by letter, in duplicate, with all parties to such contracts advising them as follows:

> In view of the pending dissolution of The National Federation of Textiles, Inc., which is designated as the Arbitration Tribunal in our contract dated , it is understood that the arbitration clause in said contract is amended to provide that in the event of the dissolution of The National Federation of Textiles, Inc., arbitration of any dispute under such contract shall be held in accordance with Arbitration Rules of the successor to the Arbitration Bureau of The National Federation of Textiles, Inc.
>
> In order that we may complete our records, please indicate your acknowledgement and consent by signing the duplicate copy of this letter and returning same to us.

Charges for Sample Cuts Now Widespread

With regard to sample cut charges, the Textile Distributors Institute recently issued the following bulletin to members:

"A survey of distributors on the practice of making an additional charge for cutting yardages sold to customers, shows that substantially all distributors have been making a charge of 10 cents a yard for

any cuts, whether sample cuts or otherwise, up to 15 yards. In some instances, distributors are making a higher charge per yard or are applying this service charge for cut yardages in lengths longer than 15 yards.

"Our survey indicates that this practice is being accepted by the cutters and that no member is making any exceptions. Up to this point, our survey shows that this charge has been put into practice in all phases of the women's and children's apparel and accessory trades.

"The majority of distributors are including the service charge of 10 cents a yard in the price and not showing it separately in the billing, with the following clause stamped on all such invoices for any cuts below 15 yards:

"AN ADDITIONAL CHARGE OF 10 CENTS A YARD HAS BEEN MADE FOR THESE CUTS

"For example, if the goods cost 50 cents a yard and a customer orders three 5 yard cuts he is billed as follows:

"3—5 Yard Cuts @ 60¢ per yard $9.00

Clause Stamp

"May we remind you that, under the Federal Trade Commission Rules for our industry, you may be in violation of certain mandatory provisions of the Robinson-Patman Act with respect to discrimination in price, if wou make this service charge to some customers and do not apply it uniformly to all your competing customers.

"Your Committee, in the interest of business stability, advises all members who are making this service charge for cuts to adhere strictly to their policy. If you have any information in connection with these service charges or any experience which you feel may be of interest, please notify the Institute."

Survey Members Special Interests

In a bulletin to members, the Textile Distributors Institute has announced that it is conducting a survey of membership interests in the various groups within the Institute. These are: coated fabrics; export; knit fabrics; lining fabric; men's wear fabric; plain spun fabric; plied yarn fabric; print fabric; retail distribution; silk fabric; special fabric; underwear fabric; blouse fabric; water repellent fabric. Members have been asked to indicate on a check list the groups in which they are interested.

TDI Curtails Two Services

Two services to members are being temporarily discontinued by the Textile Distributors Institue. These are the Freight Rate Service of The National Traffic Bureau, and "TDI Reports", a confidential economics and news letter which has been distributed to members on a quarterly basis.

Public Hearings Asked

Walter Ross, president of the Textile Distributors Institute on Jan. 1, sent the following telegram to Sen. Warren Magnuson, Chairman, Senate Interstate and Foreign Commerce Committee in Washington: "The Textile Distributors Institute, representing leading man-made fiber fabric distributors of the country doing an annual volume of approximately $800 million worth of business respectfully request public hearings to be held on HR469 and S1616 before final committee action."

Nominating Committee Named

Walter Ross, president of the Textile Distributors Institute has appointed a special nominating committee to nominate candidates for officers and board of directors as well as standing committees of the Institute. The committee consists of the following: Jackson E. Spears, Burlington Industries, Inc., chairman; Louis J. Brenner, Shirley Fabrics Corp; Louis E. Kates, French Fabrics Corp.; George Greenspan, The Cantor-Greenspan Co., Inc.

Dye Workers Vacation Period

Miss Hilda Wiedenfeld, Executive Secretary of the Textile Distributors Institute, recently notified members with regard to the scheduled vacation period this year of the Textile Workers Union of America as provided in the union's contract with members of the Silk and Rayon Printers and Dyers Association. The vacation period starts Monday, July 7, 1958, and workers will resume work on Monday, July 21, 1958.

The Association points out that July 4, 1958 which is a paid holiday falls on the Friday preceding the beginning of the vacation period. This will create a number of problems for employers who normally work right up to the day before vacation starts in order to expedite deliveries. Any firms which expect problems in this connection are advised to get in touch with Joseph F. Wildebush, executive vice president of the Silk and Rayon Printers and Dyers Association, 7 Church Street, Paterson, N. J.

ACMI Meeting April 10-12

A record attendance of more than 1,000 is expected at the convention of the American Cotton Manufacturers Institute in Hollywood, Fla., on April 10-12 as a result of the approved consolidation of ACMI and the National Federation of Textiles. The consolidation, effective May 1, brings into one organization cotton manufacturers and processors of man-made fibers and silk.

L. G. Hardman, Jr., of Commerce, Ga., ACMI president, said the program would cover numerous subjects of interest to textile manufacturers of the nation. By that time, he said, it is hoped that something will have been done about the cotton situation, which has become critical in recent months because of adverse weather conditions in the Southwest and West during the harvesting season.

At the conveniton a special effort will be made to give particular attention to the immediate interests and problems of mills. In the convention program, emphasis will be placed on the participation of members of the industry. Mr. Hardman stated that the importance of this year's sessions will be heightened by the fact that, for the first time, members of the former National Federation of Textiles will be participating.

The convention will be held at the Hollywood Beach Hotel, and the first event will be a meeting of the board of directors of ACMI during the afternoon of Wednesday, April 9. In the evening there will be a reception and dinner for the board of directors.

On Thursday, April 10, the opening meeting of the convention will be held at 2:30 P.M. On April 11, there will be a second general session at 10 A.M. and a reception at 6:30 P.M. followed by an outdoor steak dinner and entertainment at 7:30 P.M.

On Saturday, April 12, there will be another general session followed by a luncheon of the board of directors at 1 P.M.

PAPERS OF THE
AMERICAN ASSOCIATION FOR
TEXTILE TECHNOLOGY INC.®

AATT

new finishing techniques for WASH-AND-WEAR COTTONS

By J. David Reid and Robert M. Reinhardt

WASH-AND-WEAR garments, although they have many shortcomings, have seized a definite place in the textile market of modern America. The reasons for the popularity of such garments are many. The rise in the standard of living has brought about a demand for more leisure time for entertainment and amusements. At the same time, the cost of commercial laundering and dry cleaning has increased the popularity of garments which require only minimum care. Thus, the housewife, caught in the middle, turns eagerly to garments which require only minimum care and which promise freedom from the ironing chore.

Synthetic fibers provided the beginning of the wash-and-wear trend. Although the first such products were notably poor, the enthusiastic acceptance of the idea by the buying public opened the eyes of the textile manufacturer to the rich possibilities inherent in this market and prompted him to extensive research efforts in this field.

Woven cotton goods made their entrance into the wash-and-wear field only a few years ago. Of course, cotton knit goods have been used without ironing for generations, but the woven goods have generally required ironing. However, with the application of resins to cotton to give dimensional stability and wrinkle resistance, and with continued improvements in resins and applications, the development of wash-and-wear cottons is a natural result.

It may be worthwhile to point out the odd fact that the development of wash-and-wear cotton is directly due to work done on the synthetic fibers. Cotton's position in the textile field was not seriously challenged by the synthetic fibers until 1929 when through research, Tootal Broadhurst Lee, Ltd.,* in England,

* Presented at Appalachian Regional Meeting of the American Association of Textile Technologists, Inc., at Kingsport, Tennessee, October 10, 1957.

* Throughout this paper, mention of trade names and firms does not imply their endorsement by the Department of Agriculture over similar products or firms not mentioned.

Dr. J. David Reid

Dr. Reid is principal chemist in charge of chemical finishing investigations in the Cotton Chemical Laboratory at the Southern Utilization Research and Development Division of the U. S. Department of Agriculture in New Orleans, Louisiana. A native of Oregon, Dr. Reid has been with the Department of Agriculture since 1930 and with the New Orleans Laboratory since its inception. Since 1940, he has worked on the chemical modification and finishing of cotton textiles.

Mr. Reinhardt, associate chemist of the chemical finishing investigations group, Cotton Chemical Laboratory of the U. S. Department of Agriculture's Southern Utilization Research and Development Division in New Orleans, is a native of Louisiana and a graduate of Tulane University. He joined the staff of the Laboratory in 1948 and has been engaged in research on the utilization of cotton since that time.

Robert M. Reinhardt

was issued the first patent on the resin treatment of cellulosic textiles.[24] This and much of the other early work that followed was directed mainly at imparting dimensional stability during laundering to rayon textiles. It was soon discovered that the urea-formaldehyde resins which were used also added a measure of wrinkle resistance to the rayon fabrics. Development of melamine-formaldehyde resins followed, and these were applied to cotton also for both dimensional stabilization and for wrinkle resistance. It must be admitted that such resin applications to cotton were motivated less by the desire to improve the product than by consideration of cost. It was found that instead of the usual 4 or 5% loss of yardage due to shrinkage in finishing, the resin treated cloth could be stretched 1 or 2% and stabilized with resin to give an increased yardage which more than paid for the cost of the treatment.

Great advances in the chemistry of resin production and the technology of application to textiles followed. However, the next breakthrough in textiles was the advent of thermoplastic synthetic fibers. Although most of the new fibers were less comfortable than cotton, they became very popular with their use in garments which did not need to be ironed after laundering. Even though the garments did not always live up to the glowing advertising claims, there was an immediate acceptance of these garments by the homemaker who wanted to escape hours of labor over the ironing board.

With synthetics dominating the wash-and-wear market during the early stages, cotton finishers were quick to recognize the lucrative field. With their background of technical experience in resin treatment, emphasis was shifted from stabilization with a small amount of wrinkle resistance at a minimum cost, to the production of a really superior wrinkle-resistant finish at a slightly higher cost.

Thus, research on competitive fibers forced the cotton industry to develop wash-and-wear cottons. The success of the work may be judged by the fact that in 1955, 1,400,000,000 square yards of cotton were resin treated and of these, about 600 million were intended for wash-and-wear purposes.[6]

Resin-formers Used

New resins and new catalysts, as well as the blending of resins and catalysts, have contributed greatly to the success of the resin finishing of cotton. Although a large number of compounds have theoretical possibilities, price has proved to be of paramount importance, and usage is confined mainly to the nitrogenous methylol resins. Before mentioning the more common resin-formers in use today, it might be well to note the warning expressed recently by Jennings[7] that developments in the field of wash-and-wear finishes for cottons are so rapid and fluid that obsolescence of treating chemicals and techniques will take place at an accelerated pace from now on. As an example of this type of change, in the last few years, the cyclic urea resins have moved from almost nothing to about 25% of the market. Similarly, there is in progress a change from ammonium salts as catalysts to metal salts such as magnesium chloride or zinc nitrate. With these sweeping changes taking place so rapidly, it is quite possible for the information in a paper such as this to be history, rather than news.

The principal resins in use today are shown in Table I.[8] It has been estimated[3] that between 50 and 60 million pounds of formaldehyde-based thermosetting resins are presently used in textile finishing. In the table is shown the breakdown, on a wet basis, of the relative amounts of each resin used. About 2 to 4 million pounds of various dry catalysts are needed also in the application.

TABLE I
CONSUMPTION OF FORMALDEHYDE-BASED THERMOSETTING RESINS BY THE TEXTILE FINISHING INDUSTRY[8]

Resin Type	% of Total Market
Methylolureas	30
Methylol cyclic ureas	25
Modified and unmodified methylolmelamines	20
Methylated methylolureas	12
Modified methylolureas	8
Miscellaneous	5

The methylolureas or urea-formaldehyde resins are the cheapest and most widely used. (Figure 1). These

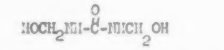


Figure 1. Dimethylolurea, a urea-formaldehyde monomer.

were the first resins successfully used for wrinkle resistance, and for many of the earlier years they accounted for almost the entire resin consumption by the textile industry. These resins have a number of shortcomings when used with cotton, principally, high chlorine retention, poor permanence, and a tendency to polymerize in the treating bath.

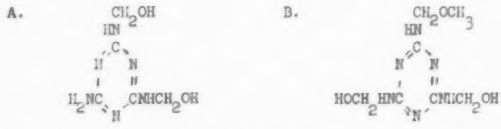


Figure 2. Melamine-formaldehyde monomers. A. is dimethylolmelamine, B. is monomethylated trimethylolmelamine.

Melamine-formaldehyde resins (Figure 2), which were developed next, were better suited to cotton application. Although their cost was much higher, the melamines imparted greater crease resistance and better strength retention in the finished fabrics.

Many resins are modified to block some of the reactive sites or to enhance the solubility in another solvent. Some are methylated by etherification of the methylol group with methyl alcohol or are butylated with butyl alcohol. The latter process is used to achieve an organic solvent soluble resin which is desirable in some commercial procedures. A methylated methylolmelamine has been used in great quantity in this country. Methylation reduces the tendency of the resin to form an insoluble three dimensional polymer prior to reaction with the fabric and assures a more soluble prepolymer. Other modifications are made to introduce properties which are desired for a specific process.

One of the newest finishing agents to achieve widespread acceptance is methylolated cyclic ethyleneurea (CEU). The dimethylolated monomer, more correctly, 1,3-bis(hydroxymethyl)-2-imidazolidinone, is shown in Figure 3. This type of resin now holds about 25% of the resin market and its use is constantly

growing. It is less expensive than the melamines and gives extremely high crease resistance. The present cost is about 29 cents per pound for a 50% solution of the dimethylol resin. Since only small add-ons, 3-4%, of the resin are necessary for wrinkle recovery angles of 280-300° (warp plus filling), it is very attractive economically for producing high quality products.

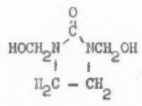


Figure 3. Dimethylol cyclic ethyleneurea or more correctly 1, 3-bis-(hydroxymethyl)-2-imidazolidinone.

A number of other resins used to a small extent in the industry include the acetylenediurea resins (Figure 4), prepared from glyoxal and urea[11], which have

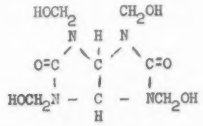


Figure 4. Tetramethylolacetylene diurea.

enjoyed some popularity in Europe; the hydantoin resins;[9] acetone-formaldehyde-starch resin;[9] acetone-formaldehyde;[10] acrolein-formaldehyde resin, the "x-2" resin;[10] and dialdehyde cross-linkers,[17] (Figure 5).

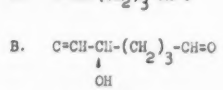


Figure 5. Dialdehydes used for the cross-linking of cellulose. A. is glutaraldehyde, B. is 2-hydroxyadipaldehyde.

Another type of resin which is very new and does not contain nitrogen has been made by the condensation of formaldehyde with alcohols.[18] The simple polymeric acetal condensation product of diethylene glycol and formaldehyde is illustrated in Figure 6. Such

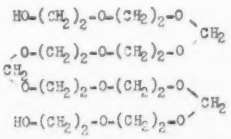


Figure 6. New polymeric acetal creaseproofing resins. Above is a polymeric acetal from formaldehyde and diethylene glycol.

a product is now being sold mainly for fabric stabilization because there is only a small improvement in the wrinkle recovery angle. However, when the alcohol used is pentaerythritol, crease recovery angles of 250-300° are obtained and these may be of interest for wash-and-wear cottons.

Among the newest developments of the textile resin industry are the epoxy resins[20] (Figure 7). These resins, which are not of the methylol type and contain no nitrogen are reported to be completely resistant to chlorine damage on bleaching. Fabrics treated with epoxy resins have shown good wrinkle recovery angles and good strength retention. Although this development is only in its infancy, it is of considerable interest because it represents a promising new type of resin.

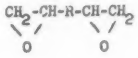


Figure 7. New diepoxy-type creaseproofing monomers. R can be a hydrocarbon, a polyhydric phenol, a polyhydric alcohol or an organic acid.

The field of resin catalysts is also rapidly changing. Acidic catalysts are used to promote the reaction of the methylol resins with the cellulose molecule. Obviously, the catalyst used must not be so strongly acid as to cause excessive degradation of the cotton during the curing step.

Ammonium salts were formerly used because of their latent catalytic action. However, their use has been practically abandoned with the development of the newer catalysts. The chief cause for dissatisfaction with the ammonium catalysts was the development of fishy odors by the resin treated goods due to improper washing out of the salts and byproducts, after curing.

Catalysts which are commonly used today are the alkanolamine hydrochloride types and the metallic inorganic salt types. Representative of the former is 2-amino-2-methyl-1-propanol hydrochloride (Figure 8, which is commercially available as a 35% aqueous

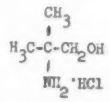


Figure 8. 2-amino-2-methyl-1-propanol hydrochloride.

solution under a number of trade names. Inorganic salts such as magnesium chloride and zinc nitrate are also used in great quantity. These inorganic salts are generally used at higher curing temperatures and yield very good crease angles. Cooke and coworkers[5] have recently published a paper comparing the various types of resin catalysts.

Mechanism of the Creaseproofing Process

In order to understand something of the mechanism by which cotton is made "creaseproof" or wrinkle resistant, it is necessary to know something about the complex makeup of the cotton fiber and the resins used.

In the cotton fiber,[25] (Figure 9), we are dealing with the remains of a living cell, enormously long in comparison with its width, and of fairly complex structure. The primary wall surrounding the fiber is about 0.1 micron thick and made up of a cellulose network thoroughly impregnated with wax and pectic material. This is the wall which makes gray cotton so hard to wet. Fortunately, for the success of resin impregnation, the wax has been fairly well removed during the kier boiling and bleaching. Under the primary wall is a cellulosic "winding" layer, of about the same thickness, and then the spiral layers of secondary

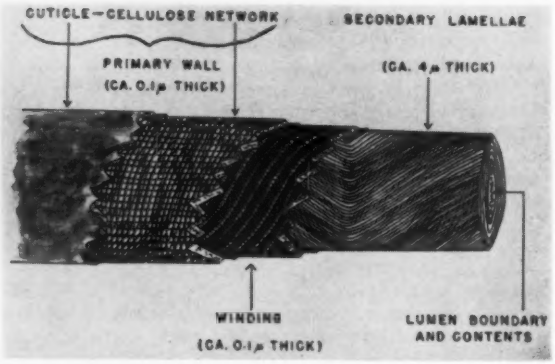


Figure 9. Schematic diagram of layered components of cotton fiber cell wall. (Courtesy of Tripp and Rollins (25.)

lamellae, which make up the main part of the fiber, totaling about 3-4 microns in thickness, to the boundary of the lumen. This is the hollow space in the center of the fiber which originally contained the protoplasm of the living cell.

Many finishing agents stop at the primary wall. For example, most compounds used in water repellency treatments, as well as the polymers of silicones or acrylates, often used in resin treatment, are too large to enter the fiber. They form a surface coating and contribute to surface effects. For good wrinkle resistance, however, the materials which will later polymerize must penetrate the fiber. Hunt and coworkers have made low temperature and gas sorption measurements which show that the average diameter of the pores of a water-swollen cotton fiber is 16 Å and that of alkali-swollen cotton is 20 Å.[15] Thus, it is obvious that finishing agents must be monomeric or polymers of very low molecular weight to penetrate these pores.

The cellulose molecule is very large and made up of anhydroglucose units linked together (Figure 10) in

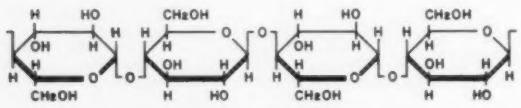


Figure 10. Segment of cellulose chain.

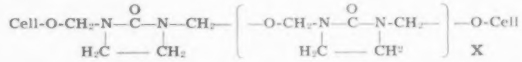
chains of from 1000 to 7000 units in cotton. Where the molecules are parallel to each other in well ordered regions, these regions are said to be "crystalline" and so tenaciously do the units hold to each other through hydrogen bonding that the solutions of resin-forming material cannot penetrate. Between the crystalline areas, however, lie regions which are less ordered and are termed "amorphous" or accessible regions. It is in these accessible areas, perhaps 20-30% of the total, that reaction is assumed to take place.

For many years textile chemists have argued as to whether the polymers which form in the amorphous regions of the cellulose contribute to its increased wrinkle resistance merely by their presence or by actual reaction with the hydroxyls of the glucose units, thus forming cross links between cellulose molecules.

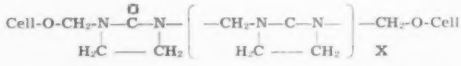
For instance, the glucose unit has been called the building block of the cellulose molecule. If this simile is carried further, the cotton may be likened to a brick wall in which some parts are carefully built with bricks tightly abutting each other while other portions have the bricks in somewhat of a loose pile. If cement in liquid form were poured onto the first, it would not penetrate and would make little change in the internal structure. However, it could penetrate the interstices of the loose bricks and make a fairly rigid mass, whether it actually cemented the bricks together or not. This, of course, is an oversimplified picture of the process. However, the preponderance of evidence is that most of the resins which contribute to wrinkle resistance actually do cross-link the cellulose.

The Southern Regional Research Laboratory is studying the mechanism by which CEU makes cotton wrinkle-resistant. CEU is essentially a monomeric material as shown in Figure 3. However, in common with all of the methylol resins, the amount of formaldehyde differs. Theoretically, there should be one methylol present for each nitrogen, but in practice, a considerable variance is found among the products of different manufacturers. Apparently, the amount of formaldehyde has a considerable effect upon the cloth produced.

In speculation on the mechanism by which CEU acts, it has been pointed out by several research workers[21,26] that linkage could be through one or more CEU residues. Steele and Giddings[28] have shown that urea-formaldehyde resins probably react with cellulose to form cross-links containing an average of 2 urea residues. However, the chain length of the CEU residues has not been determined. Cooke and coworkers[8] have produced a polymer 17 units long by heating monomeric CEU by itself without catalyst for 4 hours at 130-135°C. If this type of reaction were to occur with cellulose, the following linkage might occur[21] where X might be zero or an integer of one or more.



It would also be possible to eliminate formaldehyde from a structure of this type to give a cross link as follows:



The methylene bonds are much more stable toward acid hydrolysis than the methylene ether bonds[27]. However, at the point of reaction of the cellulosic hydroxyl and methylol resin, only methylene ether bonds are possible.

The Application of Resins to Cotton Yardgoods

The following is illustrative of a typical application of a wash-and-wear finish for cotton yardgoods. Cotton print cloth, 80 x 80, 3.2 oz./sq. yd. is scrupulously scoured to remove all alkali. Traces of residual alkali neutralize the acid catalyst and the finish is poor.

The cloth is then padded to a 65% wet add-on of finishing emulsion. The composition of a typical bath with CEU is given in Table II. The wet fabric is then dried to not more than 10% moisture content (or 15% if it is to be mechanically treated) at 250°F for one minute. Sometimes drying and curing are conducted in one operation but it is more general for this to be done in two steps. The cloth is then cured for

TABLE II
TYPICAL FORMULATION FOR THE RESIN TREATMENT OF COTTON FABRIC FOR WASH-AND-WEAR PROPERTIES

Component	Trade Names	Solids in Component	Solids in Formulation
Dimethylol cyclic ethyleneurea	Rhonite R-1	50%	7%
Modified zinc salt catalyst	Catalyst H-7	35%	0.53%
Acrylic emulsion	Rhoplex S-1	35%	1.75%
Silicone lubricant	Decetex 104 emulsion	40%	0.8%
Silicone catalyst	Catalyst XEY-21	—	—
Surface active agent	Triton X-155	100%	0.1%

not less than 3 minutes at 290°F to one minute at 365°. Occasionally, curing may be carried out for a few seconds in a gas flame at 700-1300°F. Curing conditions must be determined for each apparatus used because of variation in efficiency of heat transfer.

In many cases the cured fabric is not washed, a practice which sometimes leads to further curing and the formation of undesirable creases and fumes during storage. Sometimes the fabric is washed by dilute perborate solution and in these cases a thorough rinsing should follow. Although the fabric is usually fairly well stabilized, it is possible for it to shrink about 1% in the course of several launderings during use. Therefore, a Sanforizing step is desirable and this also gives an ironed appearance to the fabric. Well-cured fabric should have a wrinkle recovery angle of 290-300° (sum of warp plus filling) by the Monsanto method, with breaking strength and tearing strength about 65 to 70% of the original.

Cotton Wash-and wear Garments

Wash-and-wear garments made of cotton should enjoy a number of advantages over synthetic fabrics. Most important of these is the superior comfort, due to greater moisture regain and absorptivity characteristics, and the traditional preference of the consumer for cotton products. However, resin treated cotton does not possess the property of thermoplasticity. Although this is an advantage with regard to launderability, it is also great disadvantage as compared with many of the synthetic fibers, since permanent creases cannot be introduced after finishing.

When not treated for wrinkle resistance, cotton compares unfavorably in this respect with some of the synthetic materials. However, it can be resin treated in the yardgoods stage to give a highly wrinkle-resistant finish, in which case, desirable creases and pleats are difficult to introduce. Highly satisfactory wash-and-wear garments have been made from well treated wrinkle resistant cotton cloth but these garments have depended mainly upon clever design to circumvent the creasing difficulty. For example, dresses are designed with rounded seams, men's shirts have the sleeves set in like a lady's blouse, and men's sport coats have rounded or rolled sleeves.

From consideration of market potential it appears that a resin treatment which would make men's cotton dress suits and slacks acceptable to the consumer would be highly beneficial to cotton. For example, in this 180 million square yards per year market, cotton holds only about 11% of the total consumption. Beautiful cotton suiting fabrics, suitable in appearance for dress slacks, are available. A resin treatment which would produce garments which would not muss on wearing combined with a method of imparting reasonably durable creases, should enable cotton to greatly increase its share of this market. Therefore, one phase of the research for increased utilization of cotton at the Southern Regional Research Laboratory is aimed particularly at this market.

The "Ideal" Cotton Wash-and-Wear Garment

In 1956, at the Fifth Chemical Finishing Conference, sponsored by the National Cotton Council of America, a series of three papers[12,16,20] dealt with exploratory studies on the possibility of applying solutions of such materials as CEU to cotton garments with curing taking place in the garment to give durable creases and good shape holding qualities. This work was done in accordance with an idea suggested by the National Cotton council. Specifically, in the papers mentioned, the formulation of CEU, acrylate thermoplast and silicone already described in Table II was used.

In practice, the cotton garment was impregnated with the formulation and centrifuged to about 80% pickup. It was then ironed from the damp state with an electric hand iron at the "cotton" setting, about 200°C. (392°F.). The garment was thus dried and cured in one step, a procedure which proved to be exceptionally effective in producing a garment with durable creases and good wash-and-wear qualities.

In this attempt to produce an "ideal" cotton garment, little attention was paid to cost or difficulty but only the quality of the product was considered. This philosophy was based upon the idea that it is useless to work on methods of production until after it has been proven that the product will stand upon its own merits in comparison with competing garments made from synthetic textile fibers. Actually, excellent wash-and-wear cotton garments have been produced at the Southern Regional Research Laboratory by this process.

Two types of garments, shirts and trousers, have received concentrated study. Shirts received most attention because they were representative garments, easily obtainable and treated, and they could be worn and evaluated quickly with little trouble. It was recognized, of course, that cotton already holds a major share of the shirt market and that some wash-and-wear resin treated cotton shirts are already on the market, both here and abroad. In Europe, the British "Toplin," a no-iron, drip-dry poplin, is achieving great popularity.

However, the resin-treated cotton dress shirts examined by the authors, as well as shirts of the Dacron-cotton blends and of synthetic fibers, showed an unfortunate tendency toward "seam pucker" after laundering, which rather spoiled their appearance. Some resins used were light sensitive and yellowed on exposure to sunlight.

In our work on shirts, many kinds and weights, ranging from men's heavy khaki army twill, through colored sports shirts, dress white oxford, broadcloth or "skipdent" to ladies' light shirtwaists, were treated with the CEU formulation and the resin set by hand ironing. Previously-treated cottons were often stripped of resin with urea-phosphate solution prior to treatment and others were desized, but this preparation was not always necessary.

In general, these shirts were treated with the CEU-

Figure 11. A resin-treated wash-and-wear cotton skirt with wide box pleats exhibited after laundering and drip-drying.

acrylate-silicone emulsion previously described to about 5% resin add-on. The resin was cured by careful ironing with an electric hand iron, drying and curing in one operation. Garments were usually hung in a hot air oven at about 105°C. to be sure of complete curing in thick places such as the seams. It is realized that with the variety of garments treated and the varying conditions of test, the results probably are not statistically significant. Nevertheless, the garments were almost uniformly satisfactory. In one case where unusual abrasion was encountered, the wearing qualities appeared to be reduced.

Some wearers expressed a preference for stiffer collars. However, the shirts as a whole were satisfactory. Colored sport shirts in particular were highly acceptable to the wearers. Surprisingly, white dress shirts gave very good results. They were considered much more comfortable to wear and presented a better appearance than the comparable Dacron-cotton blend. In one specific instance, a white "skipdent" shirt was hand laundered and worn 51 times without ironing. At the end of this time it was still presentable, and the creases in the sleeves were still distinct.

A tremendous advantage of these shirts over the usual type of wash-and-wear garment is that they can be washed in an automatic washer, allowed to go completely through the spin-dry cycle, and finally tumbled in a dryer without loss of the good appearance.

Similar successful results were obtained with two cotton suits and a number of cotton trousers. Several denim sport trousers and some cotton cord slacks were treated. The latter had been previously treated with a urea-formaldehyde resin, and this was not removed before adding the CEU resin.

In order to obtain data from practical use tests, a considerable number of miscellaneous garments belonging to members of the staff were treated with the resin emulsion and delivered to the owners in polyethylene bags for home ironing. Although there was some complaint about formaldehyde fumes, there was almost unanimous satisfaction with the quality of the cured garments. As an example, a dress with wide box pleats looked as though it had been freshly ironed after laundering and drip drying and could be worn all day without becoming mussed. (Figure 11).

Calculation of the cost of chemicals shows that the cost per garment was very low, being approximately 2 cents per garment for shirts and perhaps twice this for a pair of trousers or a dress. The labor cost, of course, was high because of the time needed to iron the fabric dry and the need for a careful job.

An attempt has been made to reduce this labor cost by the use of dry cleaner's equipment. To this end, a contract has been negotiated with the National Institute of Dry Cleaning, Silver Spring, Maryland, to determine optimum conditions. Preliminary results of this work were reported at the Sixth Cotton Chemical Finishing Conference.[10]

Recuring

A new phase in the production of wash-and-wear cottons, involving an attempt to put durable creases in cotton which has already been made crease-resistant by resin finishing in the yardgoods stage, was the subject of a recent report.[21] Buck and Getchell[7] of the National Cotton Council of America, demonstrated such a process, for which they had applied for patent rights, in April 1957. They applied a solution of the usual acid catalyst for resins to the area to be creased and "recured" it by heating with an electric hand iron.

In a study of the mechanism of the process,[21] it is suggested that the methylene ether linkages, generally between cellulose and resin, are broken by acid hydrolysis under the conditons of high moisture content and heat of the ironing. As soon as the cloth is dry, the equilibrium shifts and new linkages are formed which set the crease in place. If unreacted resin is present, this may react.

Sometimes, to aid the reaction, some CEU or similar compound may be added to the solution applied. A highly cured cotton containing CEU is very difficult to recure, probably because many of the methylene ether linkages have gone to methylene linkages, as discussed previously, and also the cross-linked non-swelling areas are difficult to penetrate.

Various commercial resins seem to react differently in the recuring process, and this is a subject which needs further study. Reid, Reinhardt, and Kullman[21] found that, in a series of commercially treated wrinkle-resistant cottons, the mere application of water with ironing gave results which were as good as the application of a solution of catalyst under the same conditions in some cases. They explain this by showing that the cotton still retained the original catalyst used because it had not been washed after finishing, and suggest that this residual catalyst, together with any unreacted resin, is responsible for the "recuring" just as though the catalyst were added later.

Practical application of this method of producing creases by the pressing of resin-treated cotton h[as] been made by the manufacturers of wash-and-wea[r] work trousers. Unfortunately, the creases so produced are not as durable as those produced when dry-

ing and curing are carried out in one operation as described previously. There has been considerable consumer dissatisfaction with some of the laundered trousers. The basic idea, however, is sound, and further research should produce cotton garments which are truly wash-and-wear.

Quality Aspects

This brings us to one of the more recent developments in wash-and-wear cotton, namely, the unfortunate lowering in quality of much of the resin-treated cotton which is sold as "wash-and-wear." Dr. H. Y. Jennings of Dan River Mills has been quoted as follows,[2] "It has always been one of the weaknesses of the textile industry that through the pressure of competition there is always a trend to lower quality in order to obtain a lower cost rather than building up and maintaining a high standard of quality."

He also states, "There is a definite danger of damaging the future of 'wash-and-wear' finishes on cotton by others coming in and cheapening both fabrics and finishes to make a quick profit while the finish is popular." He is quoted as being of the opinion that the general quality of these goods has deteriorated during the past year rather than being improved. This is due, first to finishers rushing into the field with little background of experience; and second, to the use of cheap finishing materials and techniques in an effort to make as much as possible. The importance of correct labeling has been urged by many.[1,14]

In conversations with fabric retailers and homemakers, the authors have observed a distinct feeling of distrust for wash-and-wear fabrics. This feeling is the result of having purchased products which have been cheaply and poorly finished. Some garments have yellowed merely by exposure to strong sunlight, others by the use of chlorine bleach. Some garments have not been labeled correctly and seam pucker occurred due to stringent laundering conditions. Also, consumers are objecting seriously to "drip-drying." "There just isn't room over the bathtub for all the clothes to drip and if it has to be washed by hand, it is more trouble than it is worth" expresses the sentiments of many.

Another factor which works to cotton's disadvantage is its well-known reputation for being able to stand up to almost any abuse during laundering. Resin-treated or not, the fact that a garment is made of cotton means that often it will be subjected to rigorous laundering. If wash-and-wear cotton were given a new name, it would be treated with the care given to nylon or orlon and would undoubtedly be hailed as another miracle fiber. Following a modern advertising trend, perhaps we could call it "Norion" fiber which is "no iron" spelled backwards.

Seriously, there is the danger with all wash-and-wear garments, whether of cotton or synthetics, of cutting the throat of the goose that laid the golden egg. Certain types of wash-and-wear garments which are highly satisfactory have been manufactured from proven quality resin-treated cottons. Unfortunately, a number of entries in the field have shown that it is possible to imitate these satisfactory garments and sell them to an unsuspecting buyer. There are now about 50 labels under which wash-and-wear materials are sold. It is only common sense to believe that only those companies will survive in this field which produce a top quality product, correctly labeled, and backed by a firm guarantee.

Problems to be solved

It must not be assumed that all problems in the development of wash-and-wear cottons have been solved. A number of problems have been partially solved. For example, "seam pucker" occurs in a normally sewn garment and this spoils the appearance of an otherwise attractive looking garment. Special sewing machines have been developed which help with this problem.

Complaints about needle cutting and seam breakage have been met with special additives which reduce these troubles. Poor chlorine resistance has been a great problem but with improved resins and catalysts, this problem is gradually being overcome. Many dyes, including a large proportion of the new reactive dyes, have reduced lightfastness when the dyed cloth was resin treated. However, one survey[4] showed that out of 70 vat dyes tested, 45 dyes showed little or no variation when tested under Fadeometer.

Some of the thermoplastic additives used with the methylol resins contribute to an increased tendency toward wet soiling and some additives and dyes are chlorine retentive. These problems are being worked on by modified formulations. Losses in tear and abrasion resistance are still large, but additives to the resin have decreased these losses and cloth is being used with sufficient strength so that it is still serviceable after the resin treatment. The Southern Regional Research Laboratory, through contract research, is studying the causes of loss of tearing resistance.

The effect of construction of the cloth should also be mentioned for not enough attention has been paid to the proper textile engineering of fabrics for resin finishing. It is known that construction has a great effect upon the properties of the resin-treated fabric. For example, square weaves lose much more strength by comparable treatment than twills.[1] On the other hand, special fabrics, made of synthetic fibers, have been designed to take advantage of the fiber properties to make excellent wash-and-wear blouses. If the finisher were to be provided with cotton fabrics engineered for use with resins, rather than having to treat existing fabrics, there is no doubt but that cotton wash-and-wear garments could be improved greatly.

Thus, although a considerable amount of work has been done and excellent results have been accomplished, much research remains to be carried out.

SUMMARY

In summary, the prospects for the housewife are very bright indeed. There is every indication that wash-and-wear garments will eventually reduce greatly the labor of ironing and the cost of clothing maintenance.

The textile chemist, spurred by competition, is approaching the goal of a commercially feasible, completely washable garment which may be machine laundered and dried in the home as well as in the commercial laundry. In this race, cotton appears to have many advantages and already excellent products have been prepared in the laboratory.

New resins, new catalysts and improved techniques are factors which have contributed greatly to the successful production of wash-and-wear cotton garments. New developments in the field are so frequent that obsolescence of these same factors takes place rapidly with the production of better and better products.

More than 1.4 billion square yards of cotton are resin treated yearly in this country; 600 million

square yards of this for wash-and-wear. Unfortunately, competitive pricing and the desire for a quick profit have led to the sale of materials which have properties far below the optimum with the result that much consumer confidence has been lost. The renaissance of wash-and-wear cottons will depend upon re-establishment of consumer confidence by the production of quality products, carefully made to established standards, honestly labeled, and backed by a firm guarantee.

If the latent possibilities of cotton are fully exploited and the consumer can be assured of receiving a serviceable product, there is little doubt but what he will be willing to pay the slightly higher cost.

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Foam Interlining Outlook Good

The urethane foam interlining market may grow to 15 million square yards in three years, according to Dr. O. M. Morgan, National Aniline Division, Allied Chemical & Dye Corp. What the ultimate market will be is anybody's guess, he said, pointing out that more than one million square yards were used in outer garments during 1957. He said the advantages of such interlinings are: high tear and flex strength, aging resistance, porosity, ease of fabrication, plus washability and drycleaning without losing any of the foam material's qualities.

He Likes Rayon Tires

Rayon cord tires have proved more than equal to the worst terrain of roadless, back-country Africa, according to Adrian "Ace" Williams, explorer and documentary film producer. Williams, who conducted the tire tests for American Viscose Corp., producer of rayon cord for tire manufacturers, recently returned to the U.S. from a "rayon safari" in British East Africa and the Belgian Congo. His trucks and passenger vehicles, equipped with rayon tires, covered over 19,000 miles of Africa, which he describes as "nature's last great proving grounds."

Fairer Mill Depreciation Rates Sought

A call for more realistic treatment of textile mills' depreciation rates by Government tax authorities was sounded by James H. Hunter, president of the American Textile Machinery Association at the group's annual meeting in Boston last month. Hunter was re-elected president of the Association. He is president of James Hunter Machine Co., North Adams, Mass.

Hunter said that the obsolescence factor is a major retardant in the potentially sound and profitable businesses of textile manufacture and textile machine building. He described the activities of the association during the past year as the most constructive type of work undertaken at any time by the machinery builders. Hunter said that for the first time two allied industry groups, the American Textile Machinery Association and the American Cotton Manufacturers Institute, had pooled efforts toward solution of an overall industry problem.

He pointed out that to obtain a stronger cash flow for textile mills and give both mills and machinery industry a revitalizing "shot in the arm" ATMA fully cooperated with the Tax Committee of ACMI in preparing a study presented by the latter to the Advisory Committee of Bulletin F., U. S. Bureau of Internal Revenue. The Commissioner's Bulletin F. Committee said the study was the best industry report presented to them by any industry on the question of proper and just depreciation rates, Hunter told the group. The report "Profit Life of Textile Machinery" has been published by ATMA for textile trade use.

Hunter expressed hope that as a result of the joint effort of ACMI and ATMA that a substantial reduction in the depreciable lives of textile machinery will be granted.

"Such a decision", he said, "will give our customer industry the opportunity for a vast industrywide modernization program such as has not been attempted in many years."

W. K. Child, Vice-president, Draper Corp., was re-elected Vice-president of ATMA. F. Gorham Brigham, Jr., who was elected Treasurer in October to fill the unexpired term of Samuel F. Rockwell, president of Davis & Furber Co., North Andover, Mass., was elected to that office. Brigham is Treasurer of Saco-Lowell Shops, Boston, Mass.

ATMA OFFICERS—Left to right, Richard A. Hunter, assistant to president; W. K. Child, vice president; Mildred B. Andrews, executive secretary; James E. Hunter, president; F. Gorham Brigham, Jr., treasurer.

Engelhard Group Formed

Nine American companies in the precious metals and precision-manufacturing fields have been consolidated to form a new corporation with annual sales in excess of $200,000,000, Engelhard Industries, Inc. Charles W. Engelhard is chairman of the board of the new corporation which numbers among its products spinnerettes used in the manufacture of man-made textile fibers; atomic-reactor components; aircraft and missile parts; dental and medical devices, and equipment for the petroleum, pharmaceutical, plastics, automotive, jewelry, ceramics and electrical industries.

The firms consolidated into Engelhard Industries are: Baker & Co., Inc., producing spinnerettes and refining and fabrication of platinum; Hanovia Chemical & Mfg. Co., liquid precious metals; The American Platinum Works, silver refining; Amersil Co., producer of fused quartz; East Newark Industrial Center, Inc., realty; Irvington Smelting & Refining Works; D. E. Makepeace Co., atomic-reactor parts; National Electric Instrument Co., industrial and medical instruments, and The H. A. Wilson Co., maker of thermostatic materials, laminated metals and special alloys.

ENGELHARD MEETS THE PRESS—Charles W. Engelhard (left) board chairman and Gordon W. Richards, president (right) with moderator Ben Grauer at Engelhard Industries' products show.

1957 U. S. Production

(Continued from Page 46)

8%, regular and intermediate tenacity rayon yarn declined from 186,300,000 pounds to 165,600,000 pounds or by 11%, and acetate staple and tow from 57,300,000 pounds to 53,900,000 pounds or by 6%. On the other hnd, production of rayon staple and tow increased from 341,000,000 pounds in 1956 to 371,-200,000 pounds last year or by 8½%, while acetate filament yarn increased from 192,800,00 pounds to 207,900,000 pounds or by 8%.

The *Organon* tabulation of rayon and acetate filament yarn shipments by trade shows that the total of 704,700,000 pounds in 1957 comprised deliveries of 496,600,000 pounds of viscose and cuprammonium rayon yarn and 208,100,000 pounds of acetate yarn. Within the viscose and supra total, shipments of textile rayon yarn totaled 171,100,000 pounds, a decline of 12½% from 1956. The largest market for this textile yarn is the broad woven goods trade which received 106,400,000 pounds or 62% of the total.

Deliveries of rayon filament yarn to the tires and related uses trade amounted to 310,500,000 pounds last year, a decline of 10% from the 345,100,000 pounds shipped during 1956. Exports of rayon yarn at 15,000,000 pounds last year were nearly double the 8,000,000 pounds sent abroad in 1956.

For acetate filament yarn, the principal market continues to be the broad woven goods trade which received 168,100,000 pounds or 83% of the 203,100,-000 pounds delivered to domestic consumers in 1957. The largest market for acetate yarn is the warp knit goods trade which received 24,500,000 pounds or 12% of the domestic deliveries last year.

The *Organon* reports that United States imports of rayon staple in November amounted to 5,865,000 pounds, a decline of 18½% from the October level of 7,210,000 pounds. Over the first eleven months of 1957, these imports aggregated 77,529,000 pounds, 5% below the 81,516,000 pounds brought in during the comparable 1956 period.

Imports of non-cellulosic man-made staple in November totaled 93,000 pounds compared with 95,000 pounds brought in during October; cumulative eleven-month imports of this staple totaled 541,000 pounds, an increase of 48% over the 365,000 pounds imported during January-November 1956.

Europe

(Continued from Page 38)

New Belgian Staple—Fabelta has launched a new, high crimp viscose rayon staple named Scaldyl. It is said to be suitable both for weaving and knitting.

Finnish Hose Freed—Following the devaluation of Finland's currency, hose production has been freed from control. The Association of the Finnish Knitwear Industry is now trying to end all remaining controls.

Courtaulds at South Pole—Sir Edmund Hillary, who recently raced to the South Pole, took with him a vest made entirely from viscose and acetate. The spun yarn vest looks like a giant string bag. And it, or its twin, has now been to Mount Everest and the South Pole. It is designed to keep outerclothing away from the body by creating a vacuum through which neither heat nor cold can penetrate.

Offers Plan to Aid Dyers

A quality control plan "with teeth in it" is the keystone of a three-part program proposed by William Gordon, head of the dyers' section of the Textile Workers Union of America, to help alleviate current unprofitable conditions in the synthetic fabric dyeing and finishing field in the New York area. The control part of the program calls for adoption by such groups as the Silk and Rayon Printers & Dyers Association, of quality standards, possibly L-22, with members subscribing to a fund which would be used to adjust claims. Violators would be prohibited from using the standards' quality labels.

Other steps of Gordon's plan call for Government enforcement of present laws on selling below cost, and setting up an impartial claims group to prevent claims being used as a means of lowering prices. Gordon contends that wages costs are not the reason for current depressed conditions in the dyeing trade. He places the blame on management's highly competitive methods.

For the DYER and FINISHER

New Softeners

Hart Products Corp. has developed two new softeners for finishing cotton and synthetic fabrics. The first, Hartex Softener DW, is a 100% liquid cationic softener said to have ready solubility and good resistance to yellowing under high heat. The other, Softyne Special, is a non-ionic softener recommended for the lubrication and finishing of all natural and synthetic fibers in thread, yarn, woven or knit forms. *For further information write the editors.*

New Fast Navy Offered

Lumicrease-Cuprofix Navy GLA p.a.f., recently added to the Sandoz, Inc., Lumicrease line, is recommended for use on decorative and automotive fabrics. Fastness to light, water and perspiration are said to be more than adequate to meet the stiffest requirements for these applications. *For further information write the editors.*

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Wet Fast Wool Dye

Imperial Chemical Industries, Ltd., of Manchester, England, has reported development of a new dye combining a high degree of brightness with wet fastness. The dye, Carbolan Brilliant Blue 2G, is applied to wool from a neutral or slightly acid dye bath, and is said to yield bright greenish blue shades unobtainable with existing wool dyestuffs.

The new product is suitable for both self shades and as a component for mode shades, in the dyeing of loose wool and slubbing, and for dyeing woolen and worsted yarns where high light and washing fastness are required. In textile printing it is suitable for the direct printing of wool cloth, weighted and unweighted silk, and nylon. *For further information write the editors.*

Colloidal Lubricant

Fibregard, described as the original colloidal lubricant, has been introduced by Harry Miller Corp. For synthetics and blends the product can be used as a stock lubricant applied at the blending machine or picker, according to the manufacturer. It also may be used as a wrap sizing, softener, and binder. Fibregard is said to adhere uniformly and continuously to smooth surfaces; to increase the tensile strength of fibers, and eliminate static and ball-up during carding. Miller reports is will not discolor white goods or change the shade of dyed goods. *For further information write the editors.*

Ultra-Rapid Bleaching

Development of a series of procedures which permit ultra-rapid bleaching of open-width textiles, particularly heavier fabrics, with hydrogen peroxide has been announced by Becco Chemical Division, Food Machinery and Chemical Corp. The new procedures make use of single-stage peroxide bleaching after pre-treatment by one or more of a number of prepares, which vary according to the end-result desired, the nature and weight of the goods, the shade and characteristics of the particular dyestuffs to be employed. *For further information, write the editors.*

New Acrylic Fiber Red

Geigy Dyestuffs, division of Geigy Chemical Corp., has developed what it describes as the first true red for Orlon, Acrilan and other acrylic fibers. Called Maxilon Red BL, the company reports it has a light fastness of 7-8 and produces a bright shade somewhat on a bluish cast. *For further information write the editors.*

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow prices are given as subject to change without notice. as reported by the producers in February 1958. All

RAYON FILAMENT YARN

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Turn Skeins	Turned* Skeins & Cones	8½ Turns	High Turn Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.24	1.50	....	....	....	1.80
65/45	1.14	1.30	....	$1.53	....	1.58
75/60**	1.04	1.18	....	1.41	$1.46	1.49
100/74**	.95	1.08	....	1.33	1.38	1.44
125/60	.94	1.05	$1.09	1.30	....	....
150/120	.93	1.02	1.12	1.27	....	....
300/225	....	.95	....	....	1.08	....
900/372	....	.85	....	....	....	....
1800/744	....	.85	....	....	....	....

* Turn includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.
** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Turn Tubes	No Turn Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.00	1.00	....	....	....	....	....
65/45	1.05	....	....	....	....	$1.42	....
75/45*	.97	....	$1.08	$1.08	$1.31	1.31	$1.39
100/60*	.89	....	1.03	1.03	1.23	1.23	1.31
125/60	.84	....	.99	.99	....	....	....
150/90*	.77	....	.81	.81	1.15	1.15	1.24
150/120	.81	....	....	.93	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" (Type 51) Spool Spun Yarn

Den/Fil	No Turn Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.45	1.55	1.55	$1.75	$1.85
100/60	1.35	1.45	1.45	1.65	1.75
150/90	1.18	1.25	1.25	1.60	1.70

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.45	$1.35
1519**	155/90	....	....	1.45	1.35
2008	200/120	....	....	1.06	.96
3002	315/180	$1.10	$1.00	....	....
4011	410/224	1.10	1.00	....	....
6001	600/360	1.08	.98	....	....
8001	860/450	1.08	.98	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.
** Code 1515 can be run in warp or filling.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones	5 Turn Cones
9610	50/30	....	$2.14
9650	70/45	$1.64	....
9660	100/60	1.48	....
1545	150/90	1.25	....
9720	200/120	1.20	....
9730	285/135	1.10	....
9792	450/225	1.10	....
9814	600/372	1.07	....
9837	940/372	.97	....

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black comes in all deniers."

STRATA SLUB

Code	Den/Fil	Turned Cones	Price
9747	275/225	3½	1.20
9798	450/372	2½	1.10
9823	600/372	2½	1.05
9847	960/372	2½	.97
9885	1290/372	1½	.95
9934	2680/744	1½	.95

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Turned Cones	Price
9669	150/148	2½	$1.35
9769	300/224	3½	1.40
9807	600/405	2½	1.20
9840	900/450	2½	1.10
9924	2000/744	2½	1.00

"Spun Dyed Cupracolor Black 35¢ per pound extra."

Terms: Net 30 days, F. O. B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F. O. B. delivery point.

American Enka Corp.

Current Prices
Effective December 4, 1956
Standard Quality Yarns

Standard Quality Rayon Yarns

A. Natural

Den./Fil.	Luster	Turns	Skeins: Weaving Cones	Beams	Long	Short	Cakes	Knitting Cones
50/18	E	5 S						1.56
50/20	B	2.5 S&Z					1.45	
75/10	B	3 S&Z					1.08	
75/18	E	4 S						1.22
75/30	B	2.5,4S&Z	1.17	1.17			1.08	1.17
75/30	B	8 S	1.22			1.37		1.22
75/45	P,E	2.5, 4,5S&Z	1.17	1.17	1.23	1.37	1.08	1.17
75/60	B,P	3,4 Z	1.22				1.10	1.22
100/14	B,P	3 S&Z				1.12	.96	
100/40	B,E	12 S						1.27
100/40	B,P,E	4,5 S&Z					.96	1.04
100/40	B	6 S	1.10					
100/40,60	B,P	2.5,4S&Z	1.04	1.04	1.08	1.12	.96	1.04
100/60	E	2.5 S	1.06	1.06			.98	
125/40	E	3 Z						.96
150/40	B,P,E	2.1,3S&Z	.91	.91	.94	.99	.86	.90
150/40	B,E	5 S&Z	.91		.94	.99	.86	
150/40	B,E	8 S&Z	.97		1.00	1.05		
150/40	B,P	10 S&Z	1.03	1.03				
150/90	B,E	2.1 S&Z	.92	.92			.87	
200/40	P	3 Z						.82
200/40	B,P	8 S				.95		
250/60	P,E	2.4 Z						.75
300/50	B,E	3 S	.73	.73				
300/60,120	B,P,E	2.1 S&Z	.73	.73		.76	.71	.73
300/60	B	3.5 S	.73	.73		.76	.71	
300/60	B	4.3 S	.76	.76			.74	
300/60	B	7 S	.83					
300/40,120 H.T.	B	2.5, 3,4S	.75	.75				
450/80	B	3 S	.70	.70		.72	.68	
600/80,120	B,E	3 S	.69	.69			.67	
900/120	B	3.4 S	.68				.66	
900/120 H.T.	B	3.6 S	.70				.68	

"Jetspun" Colored Yarns

Den./Fil.	Tenacity	Turns	Weaving Cones	Beams*	Cakes	Colors
100/40	Regular	2.5S	1.39	1.39		All
150/40	Regular	2.1S	1.26	1.26		All
200/40	Regular	8.3S	1.27			All
450/80	Regular	3.0S	1.05			All
300/40	High	3.4S	1.10	1.10		All
600/80	High	3.4S	1.06			All
900/120	High	3.4S	1.05	1.05		All

Registered trade mark of American Enka solution dyed rayon yarn.
* Single color.

"Skyloft"

American Enka's Lofted Filament Rayon Yarn
Natural and Jetspun (R)
Types Available and Prices

Denier	Den/Per Filament	JETSPUN Natural	JETSPUN Black	JETSPUN Other Colors
2200	15	$.67	$.79	$.84
2700	15	.65	.75	.82
4300	8	.64	.74	.81
5300	15	.63	.73	.80

American Viscose Corp.

Effective December 14, 1956

Graded Yarns

Denier	Filament	Type	Skeins: Short	Long	All Cones Beams Tubes	Cakes
50	20	Bright & Dull	$	$1.59	$1.56	$1.45
60	10	Bright	....	....	1.41	1.30
75	10-30	Bright	1.24	1.20	1.17	1.08
75	30	Dull	....	....	1.17	1.08
100	14-40	Bright	1.12	1.07	1.04	.96
100	60	Dull	....	....	1.06	.98
150	24-40-60	Bright & Semi-Dull	.99	.94	.91	.86
150	40	Dull	....	....	.91	.86
150	90	Dull	....	....	.92	.87
200	10-44	Bright	.90	.85	.82	.78
250	60	Semi-Dull & Dull	.82	.78	.75	.73
300	44	Bright & Dull	.79	.76	.73	.71
300	234	Dull	....	....	.75	.73
300	120	Rayflex 6-Turns	....	....	.85	.83
450	100	Bright	....	.72	.70	.68
600	100	Bright	....	.71	.69	.67
900	60-100-150	Bright	....	.70	.68	.66
1200	75	Bright	....	.67	.65	....
2700	150	Bright	....	.70	.68	....

Extra Turns Per Inch

75	30	Bright 6-Turns	$1.36	$1.32	$1.29	$ ....
100	40	Bright 6-Turns	1.24	1.19	1.16	1.08
150	40	Bright 6-Turns	1.09	1.04	1.01	.96
200	44	Bright 6-Turns	....	.95	.92	....
300	15	Bright 5-Turns	....	....	.78	....
300	44	Bright 6-Turns	....	.86	.83	.81
600	30	Bright 5-Turns	....	.76	.74	.72

Rayflex Yarns

75	30	Rayflex	$	$	$1.20	$1.11
100	40	Rayflex	....	....	1.07	.99
150	60	Rayflex	....	....	.94	.89
200	75	Rayflex	....	....	.85	.81
300	120	Rayflex	....	....	.75	.73
300	120	Rayflex 6-Turns	....	....	.85	.83
450	120	Rayflex	....	....	.72	.70
600	234	Rayflex	....	....	.71	.69
900	350	Rayflex	....	.72	.70	.68

Super Rayflex Yarns

600	490	Super Rayflex	$	$	$ .78	$ ....
900	720	Super Rayflex	....	....	.77	....

Thick and Thin Yarns

150	40-90	Bright & Dull	$	$	$1.15	$ ....
200	75	Bright & Dull	....	....	1.05	....
300	120	Bright & Dull	....	....	.95	....
450	100	Bright & Dull	....	....	.92	....
490	120	Bright & Dull	....	....	.95	....
900	350	Dull	....	....	1.00	....
920	120	Bright & Dull	....	....	1.00	....

Colorspun Yarns

Currently producing regular and high tenacity at premiums at $.35 per pound.

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams	$170.00 each
Wooden Section Beams	55.00 each
Wooden Section Beam Crates	30.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.
Terms: Net 30 days.

Celanese Corp. of America

Current Prices
Effective December 14, 1956

Den.	Fil.	Twist		Beams	Cones	Cakes	Non Shrunk Tubes
#49 and #14 Production							
75/30/3	Bright			....	$1.11	$1.03	....
100/40/2Z	"			$.96	....	....	....
100/40/3	"			.98	.96	.91	....
100/40/5	"			....	1.02	.97	....
100/60/3	"			....	.97	.92	....
125/40/2Z	"			.94	.92	....	....
150/40/3	"			.89	.85	.80	....
150/40/2Z	"			.87	....	....	....
150/40/5	"			....	.91	.86	....
150/40/8	"			....	.97	.92	....
150/40/0	"	NS		....	.71	....	....
300/50/3	"			.72	.71	.69	....
300/50/0	"	NS		....	.63	....	....
#20 Production							
150/40/3	Bright			.87	.83	.78	....
150/40/0	"	NS		....	.71	....	....
150/40/2Z	"			.87	....	....	....
300/50/3	"			.72	.71	.69	....
300/50/0	"	NS		....	.63	....	....
#20 Production							
100/40/3	Dull			....	.96	.91	....
100/60/2Z	"			1.00	....	....	....
100/60/0	"			....	.93	....	....
100/60/5	"			1.04	1.02	.97	....
150/40/3	"			.87	.83	.78	$.77
150/40/0	"	NS		....	.71	....	....
150/90/3	"			....	.90	.85	....
250/60/0	"	NS		....	.67	....	....
250/60/3	"			....	.75	....	.70
#52 Thick & Thin Rayon							
150/60/3	Bright			....	1.15	....	....
450/120/3	"			....	.89	....	....

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices
Effective with orders December 7, 1956

Bright and Dull

Den.	Fil.	Turns/ Inch Up to		(A) Cones, Beams, Tubes	Cakes
40	20	3	Textile "Cordura"*	$1.90	$1.85
50	20	3		1.63	
50	20	3	Textile "Cordura"	1.65	1.60
50	35	3	Textile "Cordura"	1.70	1.65
75	10	3		1.17	1.08
75	30	3		1.17	1.08
100	15	3		1.04	.96
100	40	3		1.04	.96
100	60	3	Dull	1.06	.98
125	50	3		.96	.90
150	40	3		.91	.86
150	60	3		.91	
150	60	3	Textile "Cordura"	.92	.87
150	90	3	Dull	.92	.87
150	100	3	Dull	.92	.87
300	50	3.5		.73	.71
300	120	3	Textile "Cordura"	.74	.72
450	72	3		.70	.68
600	96	3		.69	.67
600	240	3	Textile "Cordura"	.70	.68
900	50	3		.68	.66
900	144	3		.68	.66
1165	480	3	Textile "Cordura"	.68	.65
1800	100	3		.68	
2700	150	3		.68	

Thick and Thin

100	40	3	#7	1.38	1.38
150	90	3	#7	1.15	1.15
200	80	3	#7	1.05	1.05
450	100	3	#7	.89	.89
1100	240	3	#60	1.00	1.00
2200	480	3	#60	.95	.95

(A) 2¢/lb. additional for cones less than 3# and tubes less than 2#.
Terms: Net 30 days.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.
* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective December 21, 1956

Denier	Filament	Turns per in.	Type	2.8 Lb Cones	4.4 Lb Cones	Beams	2.2 Lb Tubes	4.4 Lb Tubes
100	40	2.5 "S"	Bright	1.04		1.04		
150	40	2.5 "S"	Bright	.91		.91		
150	40	2.5 "S"	Luster #4	.91		.91		
150	40	2.5 "S"	Bright intermediate strength	.92				
200	20	2.5 "S"	Bright	.82				
200	40	2.5 "S"	Bright	.82				
300	44	2.5 "S"	Bright	.73		.73		
300	80	2.5 "S"	Bright	.73		.73		
300	80	2.5 "S"	Luster #4	.73		.73		
300	80	2.5 "S"	Bright extra strong	.75		.75		
450	60	2.0 "S"	Bright		.70	.70		
600	90	1.5 "S"	Bright		.69	.69	.69	.69
900	50	2.0 "S"	Bright		.68	.68	.68	.68
900	150	1.5 "S"	Bright		.68	.68	.68	.68

Luster #4 is semi-dull.
Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River. PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

North American Rayon Corp.

Current Prices

First Quality Yarns	Den/Fil	Twist	Cones: Knitting* Cones	Cones: No Twist Knitting Cones	Cones: Beams, Tubes** and Weaving Cones	Uncreated Cakes
	75/30	3.5			$1.17	$1.08
	75/30	7			1.30	
	75/30	15			1.37	
Normal	75/30	20			1.40	
Strength Yarns	100/40/60 Brt.	3.5			1.04	.96
NARCO	100/40/60	12			1.22	
	125/52/60	3			.96	.90
	125/52	10			1.13	
	150/42/60/75	3	$.90		.91	.86
	150/42	0		$.71		
	300/75	3	.73		.73	
	300/75	0		.63		
	600/98	3	.69		.69	
	900/46	2.5	.68		.68	
	1800/92	2.5	.68		.68	
Semi-High Strength Yarns Hi-NARCO	300/75	3			.74	

* Oiled Cones $.01 Per Pound extra for Graded Yarns only.
** 1 lb. tubes $.02 Per Pound extra for Graded Yarns only.
Terms: Net 30 days, F.O.B. shipping point, minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tennessee allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point.
Prices subject to change without notice.

RAYON HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective June 1, 1957

Tempra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	.59
1230/480	High	.59
1650/720	Low	.55
1820/720	High	.55
2200/960	High & Low	.54

Suprenka (Extra High Tenacity)

1650/720	Low	.58
1900/720	High	.58
2200/960	Low	.57

Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland, Tennessee; minimum freight allowed to first destination east of the Mississippi River.

Textile Softener

Brown-Allen Chemicals, Inc., has developed a new textile softener, Polytex No. 201. A clear, transparent emulsion, the softener is reported to impart improved hand and drape to starch sized fabrics and reduce water spotting to a minimum. Polytex No. 201 is readily miscible in water and may be used as a parting agent for textile calendering and as a grinding medium for colors. *For further information write the editors.*

Brochure Describes Mitin

Geigy Dyestuffs, division of Geigy Chemical Corp., has issued a question-and-answer brochure which describes Mitin, its properties and applications. Mitin is a compound developed by J. R. Geigy, S.A., of Basle, Switzerland, and is said to give lasting protection to woolens from clothes moth larvae, carpet beetle grubs and other wool-devouring insects. *For free copies of the brochure write the editors.*

New Rayon, Cotton Finish

Fas-Dri Corp. has announced a new process for finishing fabrics of cellulosic fibers. The process, according to the company will impart to rayons and cottons the qualities of wash-and-wear, wrinkle resistance, minimum ironing, spot and stain resistance, higher tensile and abrasive strengths, and quick-drying ability generally found in the more expensive synthetics. *For further information write the editors.*

Polyethylene Glycols Data

A new 54-page booklet on the properties, applications, storage, specifications and testing of Carbowax polyethylene glycols has been issued by Union Carbide Chemicals Co., a division of Union Carbide Corp. The glycols are water-soluble, non-volatile, unctuous liquids and solids used for water-soluble lubricants, cosmetics and ointments, emulsifying agents, adhesives and paper coatings. *For free copies of the booklet write the editors.*

Bronze Printing Powders

Hummel Chemical Co. is now offering bronze powders for textile printing. The powders are produced by Venus Bronze and Aluminumpulver of Nurnberg, Germany. Three gold powders are available for roller process textile printing and nine powders are suitable for silk screen applications. The company states that the powders, made especially for such use, are non-tarnishing and brilliant. *For further information write the editors.*

ORLON

REG. U.S. PAT. OFF.

yarn dyed by
GLOBE

. . . in bright, sparkling, lasting colors that give an extra fashion touch.

For "sunning" or swimming, Orlon knit swim suits provide the maximum in satisfaction and wearability.

For superior knitting qualities, insist on Orlon, yarn-dyed by Globe.

Globe does package dyeing on tubes, skein and warp dyeing and bleaching, warp mercerizing, and sizing.

Yarns we process include cotton, rayon, worsted, nylon, linen, blend and novelty yarns. Also Acrilan — Dacron — Orlon — Arnel — Zefran — Banlon.

1865 Globe Dye Works Co. 1958

4500 WORTH STREET
PHILADELPHIA 24, PA.
JEfferson 5-3301

American Viscose Corp.

Effective November 1, 1956
Revised June 10, 1957

Super Rayflex

Denier	Filament	Twist	Beams	Cones
1100	980	0	$.63	$.63
1100	980	4.1Z	.63	....
1100	980*	0-2Z	....	.63
1650	980	0	.58	.58
1650	980	4.1Z	.58	....
1780	980*	0-2Z	....	.58
2200	980	0	.57	.57

* High Elongation Sewing Yarn.

Tire Yarn

1100	490	2.5Z	.59	....
1650	980	0	.55	.55
1650	980	3.6Z-4.1Z	.55	....
2200	980	0	.54	.54

High Strength

1150	490	2.5Z	.59	.59
1230	490	3.1Z	.59	.59
1650	980	4Z	.55	.55
1875	980	4Z	.55	.55

Super Rayflex, Tire Yarn and High Strength yarns are sold "Not Guaranteed for Dyeing."

Tire Fabric

	Tire Yarn	Super Rayflex
1100/490/2	$.69	$.73
2200/980/2	.625	.655

Above prices based on 80% minimum Carcass, 15% maximum Top Ply, 5% maximum Breaker.

1650/980/2

* Production Factor

525	Open	Carcass	$.635	$.665
300	490	Top Ply	.645	.675
115	275**	Breaker	.67	.70

* Determined by dividing total ends by picks.

** Orders limited to 5% of total 1650 Fabric booked for any given period.

The following deposit charges are made on invoices:

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect
Terms: Net 30 days.

Celanese Corporation of America

Effective December 27, 1955
Supersedes September 12, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "
60/2.5/80 Olive Green—Spun Dyed—OG106		4 lb. Cones	3.50 lb.

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U. S. A. east of the Mississippi River.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

Fortisan-36 Rayon Yarn
Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	$2.30			
300/280	0.8Z	$2.05			
300/280	3Z	$2.20			
400/400	0.8Z	$1.75			$1.70
400/400	0			$1.75	
800/800	0.8Z	$1.25	$1.25		$1.20
800/800	3Z	$1.40			
800/800	0			$1.25	
1600/1600	0.8Z	$1.15	$1.15		$1.10
1600/1600	2½Z	$1.30			
1600/1600	0			$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U. S. A. East of the Mississippi River. Shipments West of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices
Effective with shipments April 17, 1957

"Super Cordura"*

Den Fil	Turns/in	All Packages
1100-480	2	$.63
1100-720	2	.63
1200-720	2	.63
1250-480	2	.63
1530-960	2	.61
1600-960	2	.58
1650-720	2	.58
1650-1100	2	.58
1800-1100	2	.58
1900-720	2	.58
2200-960	2	.57
2200-1440	2	.57
2400-1440	2	.57
2450-960	2	.57

Terms: Net 30 days.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective November 1, 1956

Unbleached Bright High Tenacity Yarns

SINGLE END BEAMS AND CONES:

Den.	Fil.	Turns Per In.	4.4 Lb. Cones	Beams	2.2 Lb. Tubes	4.4 Lb. Tubes
1100	480	1.5 "Z"	.59	.59	.59	.59
1650	720	1.5 "Z"	.55		.55	.55
2200	1000	1.5 "Z"	.54	.54	.54	.54
3300	1440	1.5 "Z"	.54	.54	.54	.54
4400	2000	1.5 "Z"	.54	.54	.54	.54

"Above Prices apply to Type 100. Type 200 Tyron Prices are 3¢ more."

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points east of the Mississippi River.
Prices are subject to change without notice.

North American Rayon Corp.

High-Strength Yarns—SUPER-NARCO

		Twist	Cones	Beams
1650	720	3Z		$.55
1850	720	3Z	$.55	
Super High Strength Yarns—				
1650	720	1.5Z	.58	.58

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b delivery point.

ACETATE FILAMENT YARN

American Viscose Corp.

Current Prices
Effective December 21, 1956

Bright and Dull

* Intermediate Twist

Denier & Filaments	Cones & 4-6 Lb. Tubes	Twister Tubes	Warps	Spinning Cones	Twist Warps
55/14	$1.04	$1.02	$1.05	$.98	$.99
75/20	1.00	.98	1.01	.94	.95
100/28	.95	.93	.96	.89	.90
120/32	.86	.84	.87	.80	.81
150/41	.77	.76	.78	.72	.73
200/54	.73	.72	.74	.69	.70
300/80	.69	.68	.70	.65	.66

* Standard Twist 2¢ additional.
Terms: net 30 days.

Celanese Corp. of America

Current Prices
Effective December 20, 1956

Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb Cones	Beams	4 & 6-TM Tubes	4-Pound Cheeses	Spinning Twist Cones	Beams	O Twist Tubes
	$	$	$	$	$	$1.12	$ ....
45/13	$1.17	$1.18	....	....	.98	.99	.925
55/15	1.04	1.05	....	....	.94	.95	.84
75/20	1.00	1.01	.98	....	....	.97	.89
75/50	1.02	1.03	1.00	....	.89	.90	.81
100/26-40	.95	.96	.93	....	.80	.81	....
120/40	.86	.87	.85	....	.72	.73	.69
150/40	.77	.78	.77	.77	.69	.70	....
200/52	.73	.74	.73	....	.65	.66	.63
300/80	.69	.70	.69	....	.63	.64	....
450/120	.67	.68	.67	....	....	....	....
600/160	.65	.66	.65	....	....	....	.61
900/80-240	.63	.64	.63	....	....	....	

150 Denier 12-TM Tubes ..... .76
55/0/15 Dull Tricot Beams ..... .985
2-Pound Cheeses ..... .01 Less Than 4-Pound Cheeses
2-BU and 4-Bu Tubes ..... Same Price as 4 and 6-Lb. Cones
2-Lb. Twist Tubes ..... .01 Less Than 4 & 6-Lb. Twist Tubes on 120, 200 and 300 Denier Intermediate Twist

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
150/40	1.11	1.12	1.06	1.07
200/52	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/80	.94	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Textile News Briefs

Fiber Glass Yarn Plant

Pittsburgh Plate Glass Co. will start costruction shortly of a continuous fiber glass yarn plant at Shelby, N. C. The multi-million dollar plant, described as one of the world's largest, will have more than 350,000 square feet of floor space and will be completely air-conditioned. Scheduled for completion within a year after construction starts, the plant will have 16 glass furnaces capable of producing 25,000,000 pounds of yarn annually. It will employ the direct melt system of making continuous yarn, and yarn will be twisted and plied on ring twisters specifically designed for this plant.

New S & W Sales Office

A new field sales and service office has been opened at Needham, Mass., by the Textile Machinery Division of Warner & Swasey Co. The new office replaces the company's former sales and service facilities at North Uxbridge, Mass. George M. Phoenix, formerly field engineer at North Uxbridge, has assumed similar duties at Needham.

1957 Carpet Rayon Use

Carpet and rug use of rayon in 1957 is estimated at 115 million pounds, officials of American Viscose Corp. told members of the Carpet Club of New Jersey at a recent meeting. Super L, the company's new round cross-section rayon staple for carpets, was reported to have improved soil resistance and cleanability, and wear properties comparable to wool.

New Wood Pulp Plant

Rayonier, Inc., has started operations at its second 100,000-ton chemical cellulose and wood pulp plant at Jesup, Ga. The firm's first plant was opened at Jesup in 1954. The new plant raises Rayonier's annual capacity to 915,000 tons, and represents an investment of $25,000,000.

New TTMA Headquarters

The new Tufted Textile Manufacturers Association's headquarters building in Dalton, Ga., will be formally opened on Friday, March 14. The city has proclaimed the date as "TTMA Day" and plans call for a program of festivities. Governor Griffin of Georgia and TTMA president W. H. Sparks will speak at the opening ceremonies.

Dynel Booklet Available

A new booklet on Dynel acrylic fiber has been issued by the textile fibers department of Union Carbide Chemicals Co. The 16-page illustrated booklet describes the manufacture of Dynel, its properties, uses, and care in apparel, home furnishing and industrial fabrics. The booklet was especially edited for home economics teachers, textile instructors and other interested professionals in consumer and industrial fields.

Agilon Stretch Yarn Data

Deering Milliken Research Corp. has published a booklet on Agilon stretch yarn use in seamless hosiery. The booklet contains detailed instructions for styling, knitting and finishing. The company also plans within a short time to issue similar information for full-fashioned stockings. Agilon is a non-torque yarn which can be knit on single carrier or multiple carrier knitting machines. The booklet also presents a simple method of controlling stocking size during manufacturing as well as suggested standards for sizes. *For copies of the booklet, at $1 each, write the editors.*

*13¾" and 21" diameter heads

MILTON BEAMS*
(for Nylon and rubber yarns)
GIVE YOU THE BIG
BONUS OF
SUPER STRENGTH

The super strength of Milton's forged head Tricot and Raschel Beams is no idle claim—it's been proven by yarn producers, big mills and small mills alike!

They're light in weight, yet rugged in design to give true dimensional stability without objectionable deflection or distortion. Milton's forged, heat-treated aluminum alloy heads and extra heavy barrels become a one-piece beam by the continuous weld process first introduced in the field by Milton. Trapped ends of yarn or misalignment of keyways are eliminated because there are no mechanical joints!

You name the yarn . . . monofilament, fine denier, low turn or high twist—synthetics or rubber, Milton gives you true-running, well balanced beams to handle unprecedented yardages and extreme pressures!

WRITE FOR FREE BULLETINS . . . No. 49-A on Light Metal Beams and No. 54-S on Steel Beams. The Milton line includes warp beams for broad, narrow fabric, velvet and carpet looms, as well as light metal raschel, tricot and section beams.

Over a Quarter Century of Dependability in Yarn Beams
MILTON MACHINE WORKS, INC.
DESIGNERS • ENGINEERS • MANUFACTURERS
MILTON · PENNA.

Celaperm Black Yarn Prices

Effective March 11, 1955

Denier and Filaments	4 & 6-Lb. Intermediate Twist Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Acetate

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Bms.
45-13	$1.03	$1.11		$1.12				
55-18	.925	.985		.99			$1.04	$1.05
55-24	.925	.985		.99			1.04	1.05
75-24	.84	.94		.95		$.98	1.00	1.01
75-50				.97		1.00	1.02	1.03
100-32	.81	.89		.90		.93	.95	.96
120-50	.77	.80		.81		.85	.86	.87
150-40	.69	.72	.72	.73	.77	.77	.77	.78
200-60	.68		.69	.70	.73	.73	.73	.74
240-80			.67				.71	
300-80	.63	.65	.65	.66	.69	.69	.69	.70
450-120	.63		.63	.64	.67	.67	.67	.68
600-160					.65		.65	.66
900-44					.63		.63	.64
900-240					.63		.63	.64
1800-88					.61		.61	.62
2700-132					.61		.61	.62
3000-210					.61			.62

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Intermediate Twist Price.

(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist Twisted Tubes 2 Lb.	4 & 6 Lb.	Cones	Beams
55-18	$1.245	$1.315		$1.32	$1.35	$1.35	$1.37	$1.38
75-24	1.18	1.28		1.29	1.32	1.32	1.34	1.35
100-32	1.14			1.23	1.26	1.26	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.10	1.11	1.11	1.12
200-64	1.00		1.01	1.02	1.04	1.05	1.05	1.06
300-80	.95	.97	.97	.98	1.00	1.01	1.01	1.02

(A) Regular Twist—Add $.02 to Intermediate Twist Price.

Black

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Beams
55-18	$1.045	$1.115		$1.12		$1.15	$1.17	$1.18
75-24	.98	1.08		1.09		1.12	1.14	1.15
100-32	.94			1.03		1.06	1.08	1.09
150-40	.83	.86	.86	.87		.91	.91	.92
200-60	.80		.81	.82		.85	.85	.86
300-80	.75	.77	.77	.78	.81	.81	.81	.82
450-120			.75	.76	.79	.79	.79	.80
600-160			.73	.74	.77	.77	.77	.78
900-240			.73	.74	.74	.74	.74	.75

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Int. Twist Price.

(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.

Specialty Yarns

Type 20	Same Price as Regular Yarn
Type C	Same Price as Regular Yarn

Thick & Thin

Denier & Filament	Natural Cones	Beams	Black Cones	Beams	Color-Sealed Cones	Beams
200-64 Int. Twist	1.05		$1.15		$1.35	
200-64 Reg. Twist	1.08	$1.09	1.17	$1.21		

Terms: Net 30 days. Subject to change without notice.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective December 21, 1956

"Estron"* Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Tubes	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Zero Twist
55/13	$1.06	$1.04	$1.02	$1.05	$.98	$.99	$.92½	$.99	$.98½
75/19	1.02	1.00	.98	1.01	.94	.95	.84	.95	....
75/49	1.04	1.02	....	1.03	....	....	....	....	....
100/25	.97	.95	.93	.96	.89	.90	.81	....	....
120/30	.88	.86	.84	.87	.80	.81	....	....	....
150/38	.79	.77	....	.78	.72	.73	.69	....	....
200/50	.75	.73	....	.74	.69	.70	....	....	....
300/75	.71	.69	....	.70	.65	.66	.63	....	....
450/114	.69	.67	....	.68	.63	.64	....	....	....
600/156	.67	.65	....	.66	.62	.63	.63	....	....
900/230	.65	.63	....	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current Prices—December 19, 1955

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Beams	Intermediate Twist Cones	Beams	Low Twist Cones	Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Beams	Low Twist & Spun Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.

Prices on special items quoted on request.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in the United States east of Mississippi River. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Estron" and "Chromspun" are trade-marks of the Eastman Kodak Co.

RAYON STAPLE and TOW

American Viscose Corp.

Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .31
Extra Strength	
1.0 Denier	.34
"Viscose 32A"	.36
"Avisco Crimped"	
1.25 Denier	.34
3.0 & 5.5 Deniers	.32
8.0 & 15.0 Deniers	.34
"Avisco Super L"	
8.0, 15.0 & 22.0 Deniers	.35
Short Staple Blend	.33

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier)	
1.5, 3.0 & 5.5 Denier Per Filament	.33
9.0 Denier Per Filament	.35
Grouped Continuous Filaments (4400/300 & 2000/1500)	.65

Prices of other descriptions on request.

Terms: Net 30 days.

Celanese Corp. of America

Current Prices

Rayon Tow

	Bright & Dull
1.5, 3, 5 D.P.F.	.33
8 D.P.F.	.35

Courtaulds (Alabama) Inc.

Effective August 22, 1957

Rayon Staple

	Bright	Dull
1½ and 3 denier	$.31	$.31
Available in 1½", 1-9/16" and 2".		

Crimped Rayon Staple

3 and 5½ denier	$.32	$.32
Available in 1-9/16" and 3".		
3 denier		.32
Available in 2".		

9/11/57

Personnel Changes

Chester M. Brown

Brown Succeeds Cleghorn

Chester M. Brown has been appointed president of the National Aniline Division, Allied Chemical & Dye Corp. Mr. Brown will take the place of the late Albert E. Cleghorn, who on November 1, 1957, had succeeded Donald G. Rogers, retired. Mr. Cleghorn died suddenly of a heart attack on January 9. Mr. Brown, who is a Vice President of Allied Chemical, will continue to hold that office, Glen B. Miller, President, stated.

Newell Joins Saco

Richard P. Newell has been appointed manager of the export division of Saco-Lowell Shops replacing J. M. Walker who retired on Jan. 1. Newell had been assistant manager since 1954. Previously he worked for nine years as a foreign sales agent for the Draper Corporation.

A graduate of the University of Massachusetts, he studied textiles at the Rhode Island School of Design. Over the past 15 years, Newell has travelled throughout Europe, South America, Central America, Africa, and the Far East. Currently, he is in the Middle East, visiting mills in Iran and Pakistan. H. Mahlon Dolby will assume the position of Assistant Manager of the Export Division.

Johnson Joins Denman

Harold J. Johnson has been appointed assistant general manager in charge of research and development of Denman Textile Rubber Co., Cuyahoga Falls, Ohio, according to an announcement by Wilson B. McCandless, president

Johnson has beeen active in the development of rubber products for the textile industry for the past 17 years. For most of that time he was associated with the Gates Rubber Company in Denver. For the past two years he has been conducting special studies in the textile field for U. S. Rubber Company. McCandless also announced further expansion in laboratory and quality control facilities to utilize to the fullest the capabilities of Johnson.

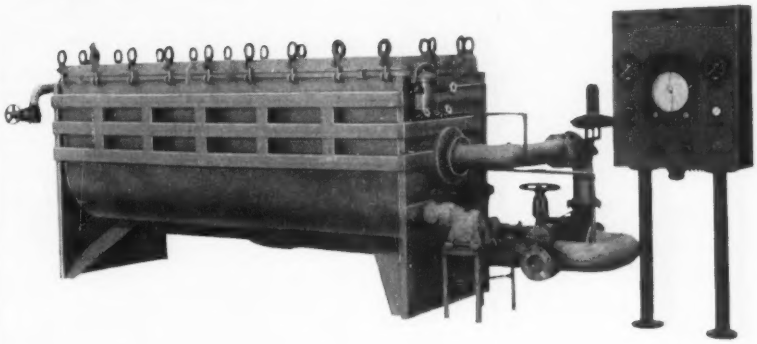
Dr. Emery I. Valko has been appointed associate professor at Lowell Technological Institute's division of chemistry.

Edward P. Taylor has been elected to the position of treasurer of Industrial Rayon Corp.

A. J. Lazarus G. J. Zahringer

George J. Zahringer, Jr. has been appointed manager of market research and **Andrew J. Lazarus**, manager of product information service for Zefran, at the Dow Chemical Co.

NEW GASTON COUNTY TRICOT DYEING MACHINES



HIGH TEMPERATURE

Developed primarily for dyeing tricot knitted fabrics, wound on perforated dye beams, at temperatures above the boiling point, this machine can also be used for dyeing at conventional temperatures below boiling. For the latter, lid may be removed or left in place.

Available for cloth 120" wide, up to 2,000 yards in length. Has been used successfully for dyeing woven as well as knitted fabrics.

Also available—open-type machine for dyeing open-width woven or knitted fabrics, laces, marquisettes and open-weave cloth, up to 72" wide and 8,000 yards in length.

OUTSTANDING NEW FEATURES

COMPLETELY AUTOMATIC FLOW CONTROL—Flow control valve is always closed when dye pump is not running. Desired dyeing pressure is pre-set on control panel, pump is started and pressure is then maintained at set point throughout the entire dyeing cycle. Thus a constant flow without surges is assured.

AUTOMATIC BEAM REVOLVING DEVICE—The dye beam is revolved by a constant speed driving mechanism and this assures even penetration during the scouring and dyeing cycles. This feature minimizes shading and produces level dyeing from end to end of the dye beam.

ROLLER TYPE BEAM SUPPORTS—If the automatic revolving mechanism is not purchased the dye beam can be rotated manually in open-type machines.

GASTON COUNTY DYEING MACHINE CO.

Pioneers in Automatically Controlled Dyeing Machines

A. R. Breen
80 E. Jackson Blvd., Chicago, Ill.

Gaston County Dyeing Machine Co.
Terminal Bldg., 68 Hudson St.
Hoboken, N. J., G. Lindner, Mgr.

Stanley, North Carolina

Albert P. March
Whitemarsh, Pa. Philadelphia 3-2901

The Rudel Machinery Co., Ltd.
614 St. James St. W. Montreal
260 Fleet St. E., Toronto

"Coloray" Spun Dyed Rayon Staple

	1½ Den. 1-1/16"	3 Den. 2"	Price per Lb.
	(Code numbers for color and denier)		
Black	1404	1419	37¢
Tan	8004	8019	39¢
Medium Brown	8804	8819	39¢
Silver Grey	1004	1019	39¢
Mocha	7704	7719	39¢
Dark Brown	8604	8619	40¢
Ecru	7904	7919	40¢
Slate Grey	0804	0819	43¢
Light Blue	4004	4019	44¢
Sulphur	2004	2019	44¢
Nugget	2304	2319	44¢
Apple Green	5104	5119	45¢
Aqua	4704	4719	45¢
Rose	5804	5819	45¢
Sage	5304	5319	45¢
Crystal Blue	3904	3919	45¢
Peacock Blue	4604	4619	46¢
Medium Blue	4204	4219	48¢
Dark Blue	4404	4419	49¢
Hunter Green	5404	5419	49¢
Indian Yellow	2504	2519	49¢
Pink	6004	6019	50¢
Dawn Pink	5904	5919	50¢
Turquoise	4804	4819	50¢
Malachite Green	5204	5219	51¢
Red	7004	7019	56¢

(In addition to the above, Black is also available in:
1½ den. 1⅛" (1401) 3 den. 1-9/16" (1416)
3 den. 1⅛" (1413) 3 den. 2½" (1420)

Terms: Net 30 days f.o.b. LeMonye, Alabama. Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Rayon Co.

Div. Bigelow-Sanford Carpet Co., Inc.

Rayon Staple

Effective January 1, 1958

REGULAR

1.5 denier Bright	
1½"	.31
5½ denier Bright	
1½", 3" and 4½"	.32

VISCALON 66 (Crimped)

8 denier 3" Bright	.34
15 denier 3" Bright	.34
15 denier 3" Dull	.34

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	45¢	45¢	....
Sandalwood	45¢	45¢	....
Nutria	45¢	45¢	....
Sea Green	45¢	45¢	....
Mint Green	45¢	45¢	....
Champagne	45¢	45¢	....
Cafe Brown	55¢	....	55¢
Midnight Black	45¢	....	45¢
Gold	48¢	48¢	....
Turquoise	45¢	45¢	....
Melon	48¢	48¢	....
Capri Blue	45¢	45¢	....
Charcoal Grey	45¢	45¢	....
Coco	46¢	46¢	....
Sable	47¢	....	47¢
Tangerine	58¢	....	58¢
Chinese Red	59¢	....	59¢
Larkspur Blue	45¢	45¢	....
Royal Blue	55¢	....	55¢
Lemon Peel	46¢	46¢	46¢
Kelly Green	46¢	46¢	46¢
Bitter Green	55¢	....	55¢

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

ACETATE STAPLE and TOW

Celanese Corp. of America

Current Prices

Staple

Celanese Acetate Staple	Bright & Dull
3, 5.5 & 8 Denier (Regular Crimp or High Crimp)	$.34
2, 12 & 17 Denier (Regular Crimp or High Crimp)	.35
35 Denier	.38
50 Denier	.40
Type F — 5.5, 8, 12, 17 Denier	.35
Type K — (Available under Celanese License Agreement)	.39
¾" to 7/8" length (All Deniers)	.03 (premium)
Variable Acetate Fiber	.32
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.27*

Tow (Celatow)

3, 5.5 & 8 Denier	$.36
2, 12 & 17 Denier	.37
35 Denier	.40
50 Denier	.42

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point).

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN
NYLON

Allied Chemical and Dye Corporation

Caprolan®†

Effective December 3, 1957

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
560	32	1	Z	HB	Aluminum Tube	$1.39
840	136	⅛	Z	HBT	Aluminum Tube	1.30
840	136	⅛	Z	HBT	Beams	1.30
Heavy Yarn						
2100	408	0	O	HB	Paper Tube*	$1.27
2100	112	0	O	HB	Paper Tube*	1.30
2500	408	0	O	HB	Paper Tube*	1.27
3360	544	0	O	HB	Paper Tube*	1.26
4200	680	0	O	HB	Paper Tube*	1.26
4200	224	0	O	HB	Paper Tube*	1.29
5000	816	0	O	HB	Paper Tube*	1.25
5000	280	0	O	HB	Paper Tube*	1.28
5800	952	0	O	HB	Paper Tube*	1.25
7500	1224	0	O	HB	Paper Tube*	1.24
10000	1632	0	O	HB	Paper Tube*	1.24
15000	2448	0	O	HB	Paper Tube*	1.23

Terms—Net 30 days.
Prices subject to change without notice.
All prices quoted F.O.B. Shipping Point.
Following are invoiced as a separate item.
Bobbins—45 cents each.
Aluminum Tubes—40 cents each.
Beams—$220.00 each.
Cradles for Beams—$53.00.

B—Bright.
H—High Tenacity.
T—Heat Stabilized.

* Paper Tubes non-returnable, no charge.
** Type is used to describe luster and tenacity

Lowest freight cost prepaid or allowed east of Mississippi River, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

† Allied Chemical's polyamide fiber.

American Enka Corporation

Nylenka Filament Yarn Prices

Effective February 1, 1958

Denier & Filament	Twist	Luster	Tenacity	Package	Yarn Weight per Package	Price per Pound, Std.	Price per Pound, Sub.
15/1	0.5Z	Semi-dull	Normal	Pirn	1 lb.	$5.25	$5.00
15/2	0.5Z	Semi-dull	Normal	Pirn	1 lb.	5.35	5.10
15/1	0.5Z	Dull	Normal	Pirn	1 lb.	5.30	5.05
20/2	0.5Z	Semi-dull	Normal	Pirn	1 lb.	4.48	4.18
30/6	0.5Z	Semi-dull	Normal	Pirn	2 lb.	2.36	2.21
40/8	0.5Z	Semi-dull	Normal	Pirn	2 lb.	2.01	1.81
50/13	0.5Z	Semi-dull	Normal	Pirn	2 lb.	1.91	1.76
200/16	0.9Z	Bright	Normal	Cone	4 lb.	1.49	1.44
200/16	0.5Z	Bright	Normal	Beam	....	1.54	....
200/34	0.9Z	Bright	Normal	Cone	4 lb.	1.49	1.44
200/34	0.5Z	Bright	Normal	Beam	....	1.54	....

Pirns charged at $.25 or $.45 each, depending upon type. Deposit refunded upon return of pirn in good condition. Cones are non-returnable. Beams and cradles are deposit carriers and remain property of American Enka Corporation.

Terms: Net 30 days. Minimum common carrier transportation charges will be prepaid and absorbed to the first destination on or east of the Mississippi River. In prepaying transportation charges, seller reserves the right to select the carrier used.

The Chemstrand Corp.

Current Prices

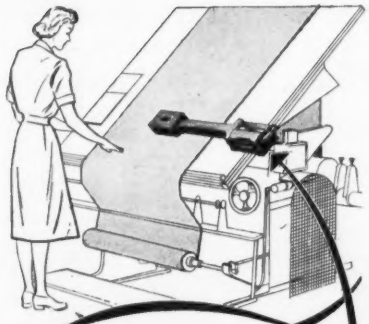
Effective December 19, 1956

Denier	Filament	Twist	Type*	Package	Standard	Second
10	1	O	SD	Bobbins	$8.42	$7.81
15	1	O	SD	Bobbins	5.25	5.00
15	1	O	D	Bobbins	5.30	5.00
15	1	O	D	Spools	5.41	....
30	10	Z	SD	Bobbins	2.36	2.21
30	10	Z	HSD	Bobbins	2.36	2.21
30	26	Z	SD	Bobbins	2.49	2.21
40	7	Z	SD	Bobbins	2.11	1.81
40	13	Z	SD	Bobbins	2.01	1.81
40	13	Z	SD	Spools	2.11	....
40	13	Z	D	Bobbins	2.06	1.81
40	13	Z	D	Spools	2.16	....
50	17	Z	SD	Bobbins	1.91	1.76
70	34	Z	SD	Bobbins	1.71	1.66
70	34	Z	B	Bobbins	1.71	1.66
70	34	Z	D	Spools	1.86	....
80	26	Z	SD	Bobbins	1.71	1.56
100	34	Z	SD	Bobbins	1.65	1.60
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
200	34	Z	B	Bobbins	1.49	1.44
200	68	Z	SD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Spools	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
630	102	Z	HB	Bobbins	1.39	1.29
840	136	Z	HB	Tubes	1.34	1.24
840	140	Z	HB	Beams	1.30	1.20
840	140	Z	HB	Tubes	1.30	1.20

*Types: D—Dull; SD Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢ each, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $77.00 and $95.00 depending on type; and beams and crates for beams are invoiced at $220 and $25 respectively.

Prices subject to change without notice.



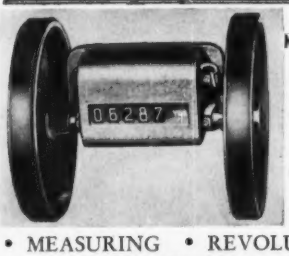
Something you owe your customers

Accurate textile measurement is what your customers expect. Give it to them! Show them indisputable evidence with a "TRUMETER" printed ticket or mill tag, delivered at any point during the run. This way you not only eliminate short-measure complaints and illegible handwritten records—you cut out waste *completely*. And that means EXTRA PROFITS!

"Trumeter" Standard Measuring Machine

"TRUMETER" can be fixed to most Inspection, Plaiting, Winding, Rolling and Doubling machines. Models are available for all types and widths of material—fine nylon, woolens, worsteds—even carpets, plastics, etc. It adds one way—subtracts the other and delivers its printed ticket with one depression of a lever. "TRUMETER" is always accurate — always reliable. There's one for *your* need. Write now for particulars of complete line.

"TRUMETER"



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TRUMETER COMPANY
Sales and Service
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IN CANADA:
Dominion Electrohome Industries LTD.
Kitchener, Ont.

Mills Clark has joined the sales and merchandising staff of American Cyanamid Co.'s fibers division and **William D. Grafton** has been named assistant to the sales manager for dyes in the company's organic chemicals division.

Louis C. Pfeifle has become president of the American Institute of Men's and Boy's Wear, succeeding **Francis DeW. Pratt** who has resigned.

M. V. Macfarlan

Malcolm V. Macfarlan has been named to the newly-created position of general sales manager for American Viscose Corp.'s rayon division.

Walter A. Moore has been named director of marketing of Corn Products Sales Co. He is succeeded in his former position as director of grocery products sales by **Richard J. Staib.**

G. N. Giraudi

Germinal N. Giraudi has become a vice president of Roberts Co. and will direct foreign operations and yarn and fabric development.

James F. Cairns has been appointed chief chemist of Nopco Chemical Co.'s textile fibers laboratory.

S. B. McFarlane, Jr.

Samuel B. McFarlane, Jr. has been appointed technical director and vice president of Onyx Oil and Chemical Co.

NYLON
DACRON
RAYON
WORSTED

COMPLETE PACKAGE SERVICE on dyed and thrown filament yarns, delivered on tubes, cones or in the cake.

Spun and Worsted Yarns

Dyers & throwsters of modern yarns since 1922

HOFFNER
RAYON CO.

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General Offices at Belgrade & Ontario Streets, Philadelphia 34, Pennsylvania. Plants at Philadelphia and Quakertown, Pennsylvania.

SALES REPRESENTATIVES

The Tillinghast-Stiles Co.
Providence, R. I. Chicago, Ill.
Shannonhouse & Wetzell, Johnston Building, Charlotte 2, N. C.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
7-1	0	200	Bobbin	$9.47	$8.82
10-1	0	200	Bobbin	8.42	7.82
12-1	0	200	Bobbin	7.35	6.85
15-1	0	200	Tricot Bms.	5.36	....
15-1	0	200	Bobbin	5.25	5.00
15-1	0	680	Tricot Bms.	5.41	....
15-1	0	680	Bobbin	5.30	5.00
20-1	0	200	Bobbin	4.42	4.12
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Tricot Bms.	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Tricot Bms.	3.07	....
20-20	0.7Z	209	Bobbin	6.00	....
30-10	0.5Z	200	Bobbin	2.36	2.21
30-10	0.5Z	200	Tricot Bms.	2.46	....
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Tricot Bms.	2.51	....
30-26	0.5Z	200	Bobbin	2.49	2.21
40-7	0.5Z	200	Bobbin	2.11	1.81
40-13	0.5Z	200	Bobbin	2.01	1.91
40-13	0.5Z	200	Tricot Bms.	2.11	....
40-13	0.5Z	400	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Tricot Bms.	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200	Bobbins	2.11	1.76
50-17	0.5Z	200	Bobbin	1.91	1.76
50-17	0	200	Tubes	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
70-17	0.5Z	200	Bobbin	1.71	1.66
70-34	0	100	Tubes	1.71	1.66
70-34	0.5Z	100/200	Bobbin	1.71	1.66
70-34	0	200	Tubes	1.71	1.66
70-34	0.5Z	300	Bobbin	1.76	1.66
70-34	0.5Z	680	Bobbin	1.76	1.66
70-34	0	680	Tubes	1.76	1.66
80-26	0.5Z	200	Bobbin	1.71	1.56
90-44	0.5Z	200	Bobbin	1.86	1.76
100-34	0.5Z	200	Bobbin	1.65	1.60
100-34	0.5Z	300	Bobbin	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.5Z	680	Bobbin	1.70	1.60
100-50	0.5Z	200	Bobbin	1.71	1.60
140-68	0.5Z	100	Bobbins	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.5Z	200	Bobbin	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
200-34	0	100	Tubes	1.49	1.44
200-34	0.7Z	100	Bobbin	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	200	Bobbin	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.7Z	300	Bobbin	1.49	1.44
210-34	0.7Z	300	Beam	1.54	....
210-34	0.7Z	330	Bobbin	1.59	1.44
260-17	1Z	300	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
780-51	1Z	300	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-140	0.5Z	300/700	Al. Tbs	1.30	1.20
840-140	0.5Z	300/700	Beam	1.30	....

Color-Sealed Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.16
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
100-34	0	140	Tubes	2.00	1.95
200-34	0.7Z	140	Bobbin	1.84	1.79
260-17	1Z	140	Bobbin	1.84	1.79

Industrial Yarn				Price/Lb.
2520-420	0	300/700	Paper Tube	$1.27
4200-700	0	300/700	Paper Tube	1.25
5040-840	0	300/700	Paper Tube	1.25
7560-1260	0	300/700	Paper Tube	1.24
10080-1680	0	300/700	Paper Tube	1.24
15120-2520	0	300/700	Paper Tube	1.23

These prices are subject to change without notice. Terms: Net 30 Days.

Types

Type 100—Bright, normal tenacity.
Type 140—Bright, color-sealed, black, normal tenacity.
Type 200—Semidull, normal tenacity.
Type 209—Semidull, normal tenacity.
Type 300—Bright, high tenacity.
Type 330—Bright, high tenacity, more heat & light resistant.
Type 400—Semidull, high tenacity.
Type 680—Dull, normal tenacity.
Type 700—Bright, high tenacity.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Following are invoiced as a separate item.
Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—$.70 or $1.00 depending on type
Tire Cord Beams—$220.00 each
Cradles for Tire Cord Beams—$115.00 each
Tricot Beams—$95.00 each
Cradles for Tricot Beams—$130.00 each
(Beams and Cradles are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Tubes 1st Gr.
30-14	0	Bright	55	$2.81
40-27	0	Semidull	56	2.41
40-27	0	Bright	55	2.41
40-27	0	Dull	57	2.46
70-34	0	Semidull	56	2.01
70-14	0	Bright	55	2.01
70-34	0	Bright	55	2.01
70-34	0	Dull	57	2.06
100-34	0	Semidull	56	1.94
140-28	0	Bright	55	1.89
150-34	0	Semidull	56	1.91
220-50	0	Bright	51	1.84
250-50	0	Bright	55	1.86
1100-250	0	Semidull	59	1.50
1100-250	0	Bright	51	1.50

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.
Type 59—Semidull, high tenacity.

Tubes are invoiced as a separate item at $.70 each.
All tubes are returnable for credit.
* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN FIBERS

The Saran Yarns Company — Odenton, Maryland

The Hall Company (Selling Agent)
41 East 42 Street, New York 17, N. Y. (Oxford 7-8996)

Current Prices:
CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
1240/10	3	$1.32	$1.37
750/20**	3	1.75	1.80

** For filter fabrics and other industrial purposes only.
F.O.B. Odenton, Maryland.
Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW ACRYLIC

The Chemstrand Corp.

Current Prices

"Acrilan"

Effective October 1, 1957

	Regular Acrilan	Acrilan 16
2.0 denier Semi-Dul and Bright staple & tow	$1.24	$1.24
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.16	1.16
3.0 denier Bright & Semi-dull staple & tow	1.16	1.16
5.0 denier Bright & Semi-dull staple & tow	1.16	1.16
8.0 denier Bright & Semi-dull staple	1.16	1.16
15.0 denier Bright & Semi-dull staple	1.01	1.05

Terms: Net 30 days. Freight prepaid to points east of the Mississippi River.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.
Textile Fibers Dept.
Effective October 1, 1957

Dynel Staple & Tow

Natural Dynel
3, 6, and 12 Denier, Staple and Tow ..... $1.10 per lb.
24 Denier, Staple and Tow ..... 1.05 per lb.
Dynel Spun with Light Colors:
Whitened, Blond, or Gray
3, 6, and 24 Denier, Staple and Tow ..... 1.30 per lb.
Dynel Spun with Dark Colors:
Black, Charcoal, and Brown
3, 6, and 24 Denier, Staple and Tow ..... 1.40 per lb.
Dynel Type 63 Bulking Fiber (3 Denier only) ..... Add $.05 per lb. to above prices

Prices are quoted f.o.b. South Charleston, W. Va.

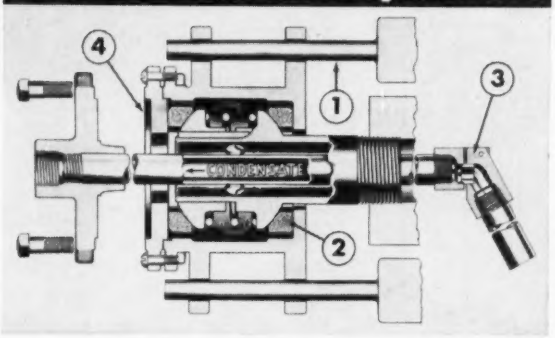
E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Orlon"** Acrylic Staple & Tow

Type 42	1st Grade
1.0 Denier Semidull & Bright—Staple only	$1.48
2.0 Denier Semidull & Bright	1.33
3.0 Denier Semidull & Bright	1.28
3.0 Denier Semidull Color-sealed Black	1.63
6.0 Denier Semidull & Bright	1.20
6.0 Denier Color-sealed Black	1.55
4.5 Denier Semidull	1.20
10.0 Denier Semidull	1.20

For service on Dry Cans and 30" Slasher Cylinders



Type LJSP with Syphon Elbow

Johnson ROTARY PRESSURE **Joints** *First* in the Textile Industry

1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. **2.** Seals without packing—needs no lubrication or adjusting. **3.** Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. **4.** Assembly plate holds parts in place when head is removed.

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, Sanforizers, 5′ and 7′ cotton slashers, etc.

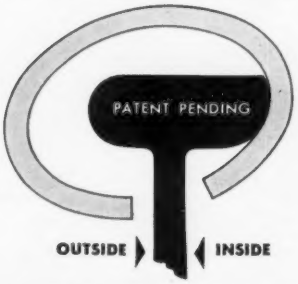
THE JOHNSON CORPORATION
844 Wood St., Three Rivers, Mich.

Announcing...the brand NEW

"ANTI-WEDGE"

FLANGE RING

Permits MAXIMUM advantage from elliptical travelers



- **TOP IS FLAT.**
- **WEB IS OFFSET.**
- **INNER FLANGE IS CONTOURED TO TRAVELER, PROVIDING NEW CONCEPT OF BEARING AREA.**

Results: Prevents wedging or trapping of yarn. Travelers run cooler, in accurately controlled orbit.
Thereby: for the first time, permits elliptical travelers to be used to MAXIMUM advantage.

Request Literature and Prices

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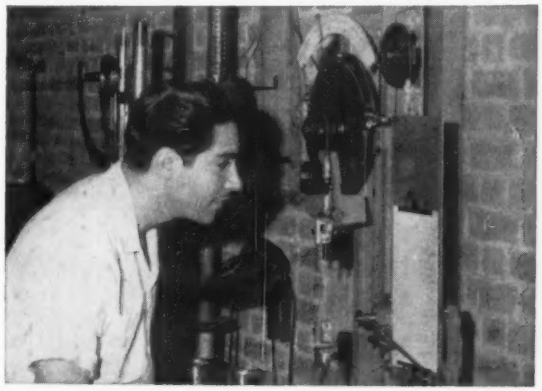
– and in *Cuba*



SCOTT TESTERS* AT
COMPANIA RAYONERA CUBANA S.A.
Matanzas, Cuba

Shown here is one of three Scott Testers* at Compania Rayonera Cubana S.A., which provide a comprehensive set-up of world-standard equipment to test single fibres, yarns and cords for tensile, hysteresis, twist and burst. Above machines is one of two Scott Model X-3 constant-speed-of-pull machines with capacities for 0 to 75 lbs. or 34 kilograms. A third is the Scott IP-4 Incline-plane Serigraph constant-rate-of-load machine with capacity from single fibre to 50 lbs. or 20 kilograms. In their commerce with firms in various parts of the world Compania Rayonera Cubana S.A. finds their Scott Testers providing "picturized" test evaluations which conform to ASTM and ISO specifications and are understood and accepted as standard everywhere. The world status of Scott equipment is attested by the fact that today

nearly 40% are shipped export

Outline your testing problem and let us assist with literature and counsel.

*Trademark

SCOTT TESTERS, INC.
70 Blackstone St., Providence, R. I.

Sales Rep. for Ala., Ga., Ky., N. C., S. C., Tenn., Va.
SCOTT TESTERS (Southern), Inc.
P. O. Box 834
Spartanburg, S. C.

Mexico Representative:
BRASSEL AND MORALES
Amores No. 843
Co. Del Valle
P. O. Box 2064
Mexico 12, D. F.

REPRESENTATIVES IN FOREIGN COUNTRIES

Standard of SCOTT *the World*

Tow—Total Denier 470,000
Staple Lengths—1½", 2", 2½", 3", 4½"
High Shrinkage Staple same price as Regular Staple

Type 39 $1.06

This product is designed for *woolen system spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A $1.14

This product is designed for *woolen system spinning* and is a blend of predominately fine deniers (average 2.4) with a variable cut length.

Type 39B $1.01

This product is designed for *woolen system spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

F.O.B. Shipping Point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Terms: Net 30 Days.

** "ORLON" is DuPont's registered trade-mark for its acrylic fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective November 15, 1956

"Verel"*

Deniers	Dull and Bright
2, 3, 5 and 8	$1.10 per pound

Prices are subject to change without notice.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in the United States east of the Mississippi River. Seller reserves the right to select route and method of shipment. If buyer requests and seller agrees to a route or method involving higher than lowest rate buyer shall pay the excess of transportation cost and tax.

* "Verel" is a trade-mark of the Eastman Kodak Co.

NYLON

American Enka Corp.

Nylenka (Nylon Six Staple)

Denier	Luster	Length (Inches)	Price per pound
3	semi-dull	1½, 1⅝, 2, 2⅜, 3, 4½	$1.28
6	bright	3, 4½	1.28
8	bright	2⅜	1.20
10	bright	3	1.20
15	bright	3	1.20
15	semi-dull	3	1.20

Deniers and lengths of staple not listed above are available upon special request.

Terms: Net 30 days. Minimum common carrier transportation charges will be prepaid and absorbed to the first destination on or east of the Mississippi River. In prepaying transportation charges, seller reserves the right to select the carrier used.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1½"—4½"	None made	$1.33	$1.18
1.5	201	1½"—4½"	None made	1.35	1.20
3.0	100/200	1½"—4½"	430M	1.28	1.13
3.0	101/201	1½"—4½"	455M	1.30	1.15
6.0	100	1½"—4½"	330M	1.28	1.13
6.0	101	1½"—4½"	345M	1.30	1.15
15.0	100	1½"—6½"	425M	1.20	1.05
15.0	101	1½"—6½"	None made	1.22	1.07
15.0	600	1½"—6½"	425M	1.22	1.07
15.0	601	1½"—6½"	None made	1.24	1.09

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows:

1⅝, 1½, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.

These prices are subject to changes without notice.

Terms—Net 30 Days.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Industrial Rayon Corp.

Effective November 29, 1956

Nylon Staple

1.5 denier	$1.33 per lb.
2, 3 and 6 denier	1.28 per lb.
8 and 15 denier	1.20 per lb.

Bright and semi-dull, required length.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"* Staple and Tow

Denier	Luster	Type	Length	Tow Bundle	1st Gr.
1.25	Semidull	54	1¼"-3"	....	$1.56
1.5	Semidull	54	1¼"-3"	....	1.51
3.0	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41
4.5	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41
6.0	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41

Terms: Net 30 Days.

F. O. B. Shipping Point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

POLYVINYL ACETATE

American Viscose Corp.

Effective October 1, 1956

"Vinyon"® Staple

3.0 denier	½" unopened	$.80 per lb.
3.0 "	1¼" unopened	.80 per lb.
3.0 "	1¼" opened	.90 per lb.
3.0 "	2" opened	.90 per lb.
3.0 "	2" unopened	.80 per lb.
5.5 "	1" opened	.90 per lb.
5.5 "	3½" opened	.90 per lb.
5.5 "	3½" unopened	.80 per lb.

Terms: Net 30 days.

PROTEIN

Virginia-Carolina Chemical Corp.

Fiber Division

Effective January 15, 1951

"Vicara" Staple

	Standard Crimp	Highly Crimped
3 Denier	$1.00 per lb.	$1.05 per lb.
5 Denier	1.00 per lb.	1.05 per lb.
7 Denier	1.00 per lb.	1.05 per lb.

Bleached "Vicara" Staple

	Standard Crimp	Highly Crimped
3 Denier	$1.10 per lb.	$1.15 per lb.
5 Denier	1.10 per lb.	1.15 per lb.
7 Denier	1.10 per lb.	1.15 per lb.

Staple length ⅛ to 6 in.

Supplied in staple lengths or as continuous tow (270,000 filaments).

Terms: Net 30 days.

Prices f.o.b. Taftville, Conn. on 10% moisture regain basis.

SARAN FIBERS

The Saran Yarns Company — Odenton, Maryland

The Hall Company (Selling Agent)

41 East 42 Street, New York 17, N. Y. (Oxford 7-8996)

Current Prices:

Saran Staple

Type	Denier	Natural	Colors
2N	22	$0.70	$0.75
2N	16	.74	.79
3Q*	22	.63	.67

In any staple length 1½ to 6". Also 45 denier, 7" cut.

* For carpets and industrial fabrics.

METALLICS

Fairtex Corporation

1808 Liberty Life Building

Charlotte 2, N. C.

January 23, 1958

1. Fairtex No. 260 (butyrate)—gold, silver and copper.

Width	Yield (Per Pound)	Price (Per Pound)
1/120"	21,000	$4.75
1/80"	13,000	4.00
1/64"	10,800	3.35
1/50"	8,400	3.25
1/32"	5,300	3.00
1/16"	2,600	2.85
1/8"	1,300	2.70

2. Fairtex with Mylar* No. 100V (2 ply), (metallized type)—silver only.

1/100"	48,000	$13.25
1/80"	37,000	11.40
1/64"	31,000	10.40
1/50"	24,200	10.15
1/32"	15,500	9.80

Fairtex with Mylar* No. 150V (3 ply), (metallized type)—gold, silver and copper.

1/100"	32,000	$10.65
1/80"	25,000	9.25
1/64"	21,000	8.35
1/50"	16,400	8.20
1/32"	10,500	8.05

3. Fairtex with Mylar* No. 150F, (foil type)—gold, silver and copper.

1/100"	28,000	$7.75
1/80"	21,450	7.00
1/64"	17,200	5.95
1/50"	13,400	5.80
1/32"	8,600	5.65
1/16"	4,300	5.50

4. General Information:
   a. Staple available upon request on above types.
   b. Above types also available supported with Nylon, Fortisan or other synthetics.
   c. Colors available on above upon request at slight additional cost.
   d. Quantity discounts on above prices.
   e. Fairtex is supplied on 1 lb. disposable spools—48 spools per case and on ½ lb. disposable spools—100 spools per case.

News (Continued from Page 79)

Dr. J. W. Luthy has been appointed director of applications Sandoz, Inc's dyestuff and chemical divisions.

W. Gordon McCabe has been elected to the board of directors of J. P. Stevens and **James D. Finley** and **Whitney Stevens** have been elected vice presidents of the company.

Steven Nye has been promoted to the newly-created post of manager of the southern textile application laboratories, Warwick Chemical Division of Sun Chemical Corp.

J. Colby Lewis has retired from the vice presidency and from his position as head of manufacturing & research of Coats & Clark, Inc. He will continue to serve as a consultant to the company. Mr. Lewis has been succeeded in active management by **William C. Wheeler.**

Ray C. Tuttle has retired from his position as advertising consultant for Eastman Chemical Products, Inc. after 28 years of service with the company.

Deaths

Elmer C. Carling, sales manager of the pigments division of American Cyanamid Co. died recently at the age of 48 after a short illness.

Lawrence Zavell, vice president of Pavillon Fabrics, Ltd., has died recently. He was a member of The Textile Distributors Institute.

Henry F. Thomas, owner and operator of Henry F. Thomas, Inc. died suddenly at the age of 47.

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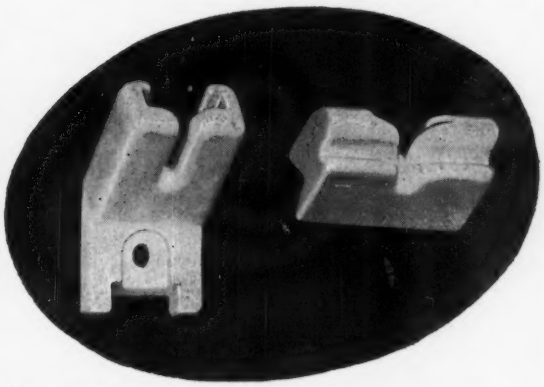

We, whose ceramic research developed
LAMBERTVILLE THREAD GUIDES
like to keep tract of the progress of ceramists in other fields. The papers report that scientists working on our missiles programs have finally found an approach to the conquest of atmospheric friction, thus solving the reentry problem.
Though somewhat less spectacular, our own private battle with friction was won through ceramic research too. Today's Lambertville Thread Guides resist the punishing, concentrated friction of fast-moving modern yarns for thousands of hours and keep their surface smoothness intact.

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AND MANUFACTURING COMPANY
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NO YARN TRAPPING WITH
BRAZED ALUMINUM TWO POUND TAKE-UP BOBBIN

New aluminum take-up bobbin with barrel and heads brazed together into a single unit prevents yarn trapping. Exceptional strength at price no higher than ordinary bobbins.

Write us today for full details.

BW MACK **ALLENTOWN BOBBIN WORKS, INC.**
ALLENTOWN **PENNSYLVANIA**

Metlon Corp.

Effective January 27, 1958

Metlon*-Mylar**

Price List

Metlon F. Mylar (Foil Laminated)

WIDTH	YARDS PER LB. (Plus or minus 5%)	PRICE PER LB. GOLD OR SILVER
1/120"	32,200	$9.80
1/80"	21,500	$7.10
1/64"	17,200	$5.95
1/50"	13,500	$5.80
1/32"	8,600	$5.65
1/16"	4,300	$5.65
1/8"	2,250	$5.65

Standard Colors: 35¢ per pound additional.

QUANTITY DISCOUNTS:

2,000 lbs. — 3%
5,000 lbs. — 5%

To earn discount, quantity ordered must be withdrawn within 90 days from date of order.

TERMS: 1% 10 days, net 30. F.O.B. Providence, Rhode Island. Minimum freight allowed on shipments of 100 lbs. or over.

PUT UP: Plastic Disposable Spools.

Minimum Order—one case (approximately 35 lbs. net).

Smaller quantities subject to surcharge.

PRICES APPLY TO CONTINENTAL U. S. A. AND CANADA.

* Metlon's registered trademark for non-tarnishing metallic yarn.

** DuPont's registered trademark for polyester film.

Reynolds Metals Co.

Reynolds Aluminum Yarns

July 5, 1957

200 Series

	PRODUCT NUMBER	WIDTH	APPROX. YIELDS IN LINEAL YDS. PER LB.	ϕ PRICE PER POUND— 48 THRU 1,999 POUNDS (1) Standard Colors	(2) Special Colors	(3) Non-Standard Colors	(4) Multi-Colors
Acetate-Butyrate	204	1/8"	1,350	$2.80	$3.05	$3.05	$3.05
	204	1/16"	2,700	2.85	3.10	3.10	3.10
	204	1/32"	5,400	3.00	3.25	3.25	3.25
	204	1/50"	8,450	3.25	3.50	3.50	3.50
	204	1/64"	10,800	3.35	3.60	3.60	3.60
	204	1/80"	13,500	4.00	4.25	4.25	4.25
Mylar-Foil	230	1/8"	1,450	$5.60	$5.95	$5.95	$5.95
	230	1/16"	2,900	5.75	6.10	6.10	6.10
	230	1/32"	5,800	5.90	6.25	6.25	6.25
	230	1/50"	9,050	6.05	6.40	6.40	6.40
	230	1/64"	11,600	6.20	6.55	6.55	6.55
	230	1/80"	14,450	7.25	7.60	7.60	7.60
Mylar-Foil	235	1/8"	2,150	$5.35	$5.70	$5.70	$5.70
	235	1/16"	4,300	5.50	5.85	5.85	5.85
	235	1/32"	8,600	5.65	6.00	6.00	6.00
	235	1/50"	13,400	5.80	6.15	6.15	6.15
	235	1/64"	17,200	5.95	6.30	6.30	6.30
	235	1/80"	21,450	7.00	7.35	7.35	7.35
Mylar-Foil	215	1/8"	1,730	$5.30	$5.65	$5.65	$5.65
	215	1/16"	3,460	5.45	5.80	5.80	5.80
	215	1/32"	6,920	5.60	5.95	5.95	5.95
	215	1/50"	10,800	5.75	6.10	6.10	6.10
	215	1/64"	13,840	5.90	6.25	6.25	6.25
	215	1/80"	17,270	6.95	7.30	7.30	7.30

Reymet Staple: Foil Mylar $6.00 per lb.

Metallized Mylar: $10.50 per lb. These can be cut in width to 1/220", also full range of Colors.

(1) Standard Yarn Colors: Silver and Gold.

ϕ (2) Special Yarn Colors: Refer to Products Supervisor, Special Foil Products located at Richmond, Va.

(3) Non-Standard Yarn Colors: Refer to Products Supervisor, Special Foil Products located at Richmond, Virginia.

(4) Multi-Colors: Limited to one standard color stripe on silver.

ϕ Quantity Discounts to be applied on invoice:

5,000 lbs. and over less 5%.
2,000 thru 4,999 lbs. less 3%.

Items can be grouped for quantity price provided each is held to a minimum of 250 pounds. No grouping for less than 250 pounds.

Minimum acceptable orders for standard and special colors is 48 pounds per size and color.

Minimum acceptable order for non-standard colors is 150 pounds per size and color.

AVAILABLE PACKAGES:

Following types available:

Die-cast aluminum spools with straight flange; 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.40 each are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th & Byrd Streets, Richmond, Virginia.

No charge returnable plastic spools with 3¼" O.D., 4½" traverse. Each spool contains approximately 1 pound of yarn. These spools are returnable for credit @ $.02 each F.O.B. customer's plant. Subject to inspection and count of seller.

Tin spools with straight flange with 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.10 each are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th & Byrd Streets, Richmond, Virginia.

PACKING:

36 spools per corrugated fiber carton, size 18-1/16" x 14-1/16" x 11".

ORDERING DATA:

Specify Product, Width, Color and Type of Spool.

Aluminzed Series

PRODUCT NUMBER	WIDTH	APPROX. YIELDS IN LINEAL YARDS PER POUND	PRICE PER POUND 48 THRU 1999 POUNDS
250	1/32"	10,000	$8.05
250	1/50"	15,650	8.20
250	1/64"	20,000	8.35
250	1/80"	25,000	10.25
255	1/32"	15,500	$9.80
255	1/50"	24,200	10.15
255	1/64"	31,000	10.40
255	1/80"	38,700	12.40

250 offered in silver and gold.

255 offered in silver only.

Quantity discounts to be applied on invoice:

2,000 lbs. and over less 3%.
5,000 lbs. and over less 5%.

Sizes can be grouped for quantity price providing each is held to a minimum of 250 lbs.

No grouping for less than 250 lbs. Minimum acceptable order is 48 pounds per item.

AVAILABLE PACKAGES:

Following types available.

Die-cast aluminum spools with straight flange, 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.40 each, are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th and Byrd Streets, Richmond, Virginia.

No charge returnable plastic spools with 3¼" O.D., 4½" traverse. Each spool contains approximately 1 pound of yarn. These spools are returnable for credit @ $.02 each, F.O.B. customer's plant. Subject to inspection and count of seller.

Tin spools with straight flange with 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.10 each, are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th and Byrd Streets, Richmond, Virginia.

PACKING:

36 spools per corrugated fiber carton, size 15¼" x 14½" x 11".

ORDERING DATA:

Specify Product, Color, Width, and Type of Spool.

SUPERIOR

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Calendar of Coming Events

Mar. 5—AATT monthly meeting. Hotel Vanderbilt, New York, N. Y.
Mar. 6-7—Textile Quality Control Association spring meeting. Poinsett Hotel, Greenville, S. C.
Mar. 13-14—Annual AIEE Textile Electrical Conference. Georgia Institute of Technology, Atlanta, Ga.
Mar. 13-14—Southern Textile Methods and Standards Association. Clemson House, Clemson, S. C.
Mar. 18-21—A.S.T.M. Committee D-13 spring meeting. Sheraton Park Hotel, Washington, D. C.
Mar. 20-21—ASME Textile Engineering Conference. North Carolina State College, Raleigh, N. C.
Mar. 27-29—Division of High-Polymer Physics of American Physical Society meeting. University of Chicago, Chicago, Ill.
Apr. 2—AATT monthly meeting. Della Robbia Room, Vanderbilt Hotel, New York, N. Y.
Apr. 10-11—Cotton Merchandising Research Clinic, annual meeting. Austin, Texas.
Apr. 10-12—American Cotton Manufacturers Institute annual meeting. Hollywood Beach Hotel, Hollywood, Fla.
Apr. 16-18—Alabama Textile Manufacturers Assoc. annual meeting. Hotel Buena Vista, Biloxi, Miss.
Apr. 19—Textile Operating Executives of Georgia. Georgia Institute of Technology, Atlanta, Ga.
Apr. 21-22—NAHM annual meeting and Hosiery Industry Conference. Hotel Roanoke, Roanoke, Va.
Apr. 23—The Textile Institute annual meeting. Nottingham, England.
Apr. 23-26—Cotton Manufacturers Assoc. of Georgia. Boca-Raton Hotel, Boca Raton, Fla.
Apr. 24-26—Phi Psi Textile Fraternity annual convention. Philadelphia, Pa.
Apr. 29-30—Institute of Textile Technology, Charlottesville, Va. Meetings of Technical Advisory Committee and Board of Trustees.
Apr. 30-May 1—The Fiber Society spring meeting. Clemson House, Clemson, S. C.
May 1—Underwear Institute annual meeting. Hotel Biltmore, New York, N. Y.
May 2—The Drysalters Club of New England spring dinner. Hotel Vendome, Boston, Mass.
May 3—The Alabama Textile Operating Executives spring meeting. Thach Auditorium, Auburn, Ala.
May 6—Canadian Textile Conference. Queen Elizabeth Hotel, Montreal, Que.
May 7—AATT monthly meeting. Della Robbia Room, Vanderbilt Hotel, New York, N. Y.
May 19-24—National Cotton Week.
Jun. 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jun. 4-7—Tufted Textile Manufacturers Association annual meeting. Daytona Beach, Fla.
Jun. 9-12—Materials Handling Exposition. Public Auditorium, Cleveland, Ohio.
Jun. 19-21—Southern Textile Association annual convention. Grove Park Inn, Asheville, N. C.
Jun. 22-27—ASTM annual meeting. Hotel Statler, Boston, Mass.
Jul. 20-23—Textile Merchants and Associated Industries Exhibit. Sheraton-Jefferson Hotel, St. Louis, Mo.
Sep. 9-10—The Fiber Society, Inc. Montreal, Can. (Meeting place to be announced.)
Sep. 11-12—Combed Yarn Spinners Association annual meeting. The Cloister, Sea Island, Ga.
Sep. 25-26—Northern Textile Association. Wentworth-by-the-Sea, Portsmouth, N. H.
Oct. 1-2—National Cotton Council, Chemical Finishing Conference. Washington, D. C.
Oct. 6-10—Southern Textile Exposition. Greenville, S. C.
Oct. 30-Nov. 1—AATCC National Convention. Hotel Conrad Hilton, Chicago, Ill.

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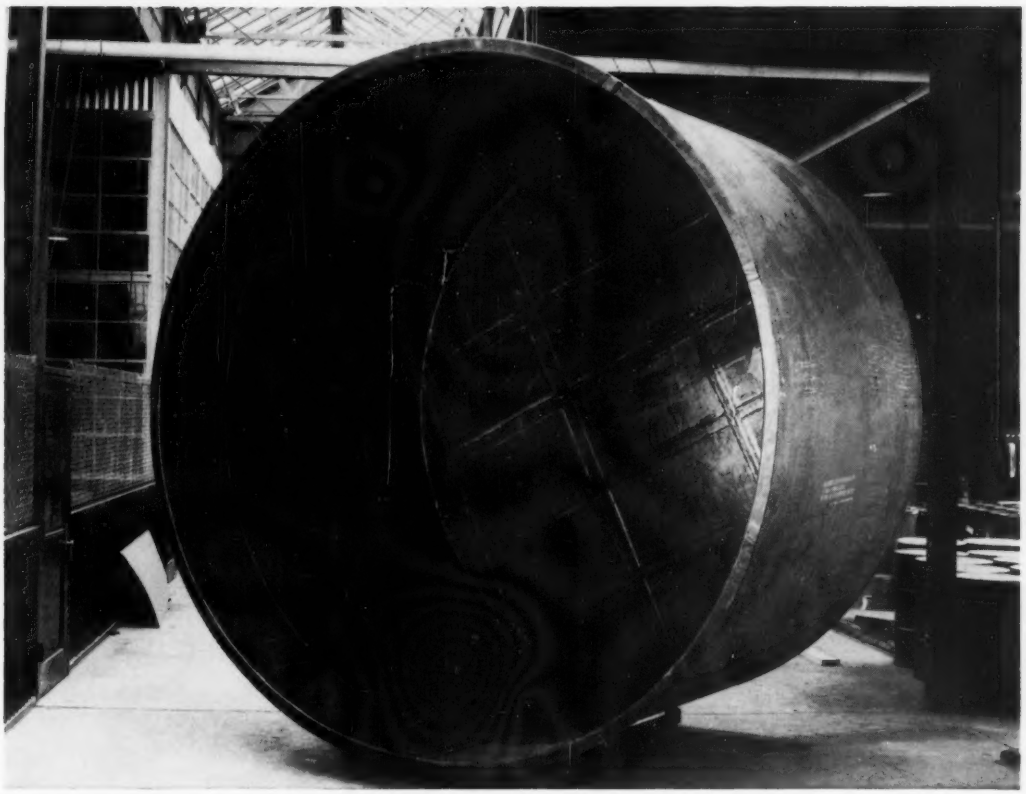

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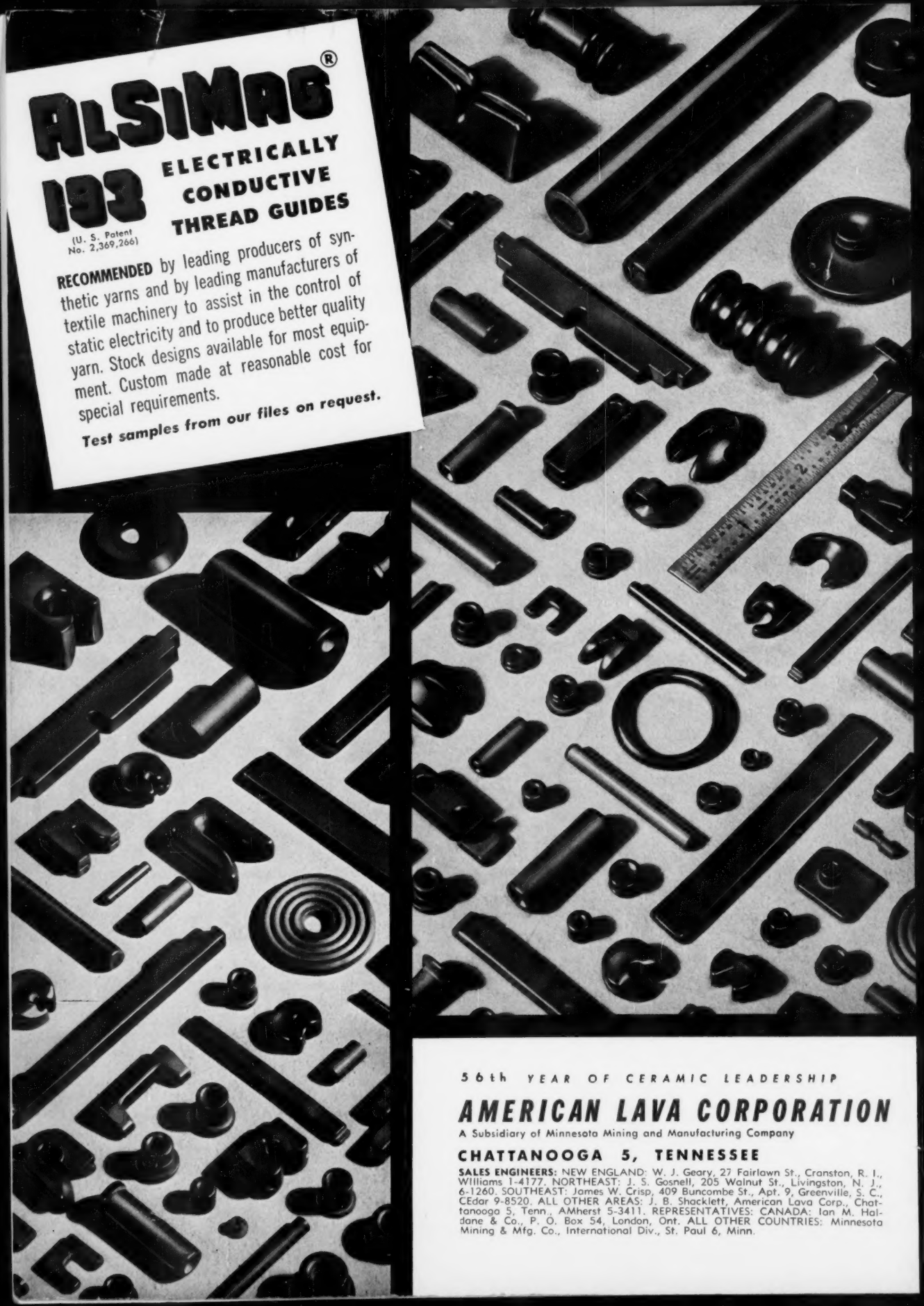

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